# **SERVICE MANUAL**

Ver 1.0 2002. 03 **Revision History** 



Photo: DCR-TRV18

US Model Canadian Model AEP Model

**UK Model** East European Model North European Model DCR-TRV16E/TRV18E/TRV116E/TRV118E

> E Model Hong Kong Model

Australian Model Chinese Model DCR-TRV16E/TRV18E

Tourist Model DCR-TRV18/TRV18F

Korea Model DCR-TRV16/TRV18

J MECHANISM

Link		
• SPECIFICATIONS	BLOCK DIAGRAMS	PRINTED WIRING BOARDS
• SERVICE NOTE	FRAME SCHEMATIC DIAGRAMS	<ul><li>ADJUSTMENTS</li></ul>
• DISASSEMBLY	SCHEMATIC DIAGRAMS	REPAIR PARTS LIST

For MECHANISM ADJUSTMENTS, refer to the "DV MECHANICAL ADJUSTMENT MANUAL  ${\mathbb V}$ I J MECHANISM " (9-929-807-11).

# On the VC-280 board

This service manual provides the information that is premised the circuit board replacement service and not intended repair inside the VC-280 board.

Therefore, schematic diagram, printed wiring board, waveforms, mounted parts location and electrical parts list of the VC-280 board are not shown.

The following pages are not shown.

Schematic diagram ......Pages 4-37 to 4-66 Mounted parts location ...... Pages 4-95 to 4-96 Printed wiring board ......Pages 4-85 to 4-88 Electrical parts list ...... Pages 6-19 to 6-24

Waveforms ...... Page 4-92



DIGITAL VIDEO CAMERA RECORDER

















#### **SPECIFICATIONS**

# Video camera recorder

#### System

Video recording system 2 rotary heads Helical scanning system Audio recording system Rotary heads, PCM system Quantization: 12 bits (Fs 32 kHz, stereo 1, stereo 2), 16 bits (Fs 48 kHz, stereo)

Video signal DCR-TRV16/TRV18: NTSC color EIA standards DCR-TRV16E/TRV18E/TRV116E/ TRV118E:

PAL colour, CCIR standards Usable cassette Mini DV cassette with the Mini DV mark printed Tape speed SP: Approx. 18.81 mm/s

LP: Approx. 12.56 mm/s Recording/playback time (using cassette DVM60) SP: 1 hour

LP: 1.5 hours

DCR-TRV16:

Fastforward/rewind time (using cassette DVM60) When using the battery pack: Approx. 2 min. and 30 seconds When using the AC power adaptor: Approx. 2 min. and 30 seconds Viewfinder

Electric viewfinder (colour) Image device

4.5 mm (1/4 type) CCD (Charge)Coupled Device) Gross: Approx. 680 000 pixels

Effective Approx. 340 000 pixels

DCR-TRV16E/TRV116E: 4.5 mm (1/4 type) CCD (Charge Coupled Device)

Gross: Approx. 800 000 pixels Effective: Approx. 400 000 pixels

DCR-TRV18:

4.5 mm (1/4 type) CCD (Charge Coupled Device)

Gross: Approx. 680 000 pixels Effective (still):

Approx. 340 000 pixels Effective (moving):

Approx. 340 000 pixels DCR-TRV18E/TRV118E:

4.5 mm (1/4 type) CCD (Charge)Coupled Device) Gross: Approx. 800 000 pixels

Effective (still): Approx. 400 000 pixels Effective (moving): Approx. 400 000 pixels

Lens Carl Zeiss Combined power zoom lens Filter diameter

30 mm (1 3/16 in.) 10× (Optical), 120× (Digital)

3.3 - 33 mm (5/32 - 1 5/16 in.) When converted to a 35 mm still camera In CAMERA/MEMORY (DCR-TRV18/TRV18E/TRV118E only) 42 - 420 mm (1 11/16 - 16 5/8 in.) Colour temperature Auto, HOLD (Hold), Alndoor

(3 200 K), **\*** Outdoor (5 800 K) Minimum illumination 5 lx (lux) (F 1.7)

0 lx (lux) (in the NightShot mode)\*

Objects unable to be seen due to the dark can be shot with infrared

# Input/Output connectors

S video input/output DCR-TRV16/TRV16E:E, HK, AUS, CH/ Picture TERV18/TRV18E:E, HK, JE, AUS, CH/

TRV116E/TRV118E: 4-pin mini DIN Luminance signal: 1 Vp-p, 75 Ω (ohms), unbalanced Chrominance signal: 0.286 Vp-p, 75  $\Omega$  (ohms) DCR-TRV116E/TRV118E: 4-pin mini DIN Luminance signal: 1 Vp-p, 75  $\Omega$ 

(ohms), unbalanced Chrominance signal: 0.3 Vp-p, 75  $\Omega$  (ohms), unbalanced S video output DCR-TRV16E:AEP, UK, EE, NE/

TRV18E:AEP, UK, EE, NE: 4-pin mini DIN Luminance signal: 1 Vp-p, 75  $\Omega$ (ohms), unbalanced

Chrominance signal: 0.3 Vp-p, 75 Ω (ohms), unbalanced

Audio/Video input/output

DCR-TRV16/TRV16E:E, HK, AUS, CH/ TERV18/TRV18E:E, HK, JE, AUS, CH/ TRV116E/TRV118E:

AV MINI JACK, 1 Vp-p, 75 Ω (ohms), unbalanced, sync negative 327 mV, (at output impedance more than 47 k $\Omega$  (kilohms)) Output impedance with less than

2.2 kΩ (kilohms)/Stereo minijack (ø 3.5mm)

Input impedance more than 47 kΩ (kilohms)

Audio/Video output

DCR-TRV16E:AEP, UK, EE, NE/ TRV18E:AEP, UK, EE, NE: AV MINI JACK, 1 Vp-p, 75 Ω (ohms), unbalanced, sync negative 327 mV, (at output impedance more than 47  $k\Omega$  (kilohms)) Output impedance with less than 2.2 kΩ (kilohms)/Stereo minijack (ø 3.5mm)

Input impedance more than 47 kΩ (kilohms)

DCR-TRV16/TRV16E:E, HK, AUS, CH/ TERV18/TRV18E:E, HK, JE, AUS, CH/ TRV116E/TRV118E:

4-pin connector DV output

DCR-TRV16E:AEP, UK, EE, NE/ TRV18E:AEP, UK, EE, NE:

4-pin connector Headphone jack Stereo minijack (ø 3.5 mm) USB jack

mini-B LANC jack

Stereo mini-minijack (ø 2.5 mm) MIC jack Stereo minijack (ø 3.5 mm)

# LCD screen

6.2 cm (2.5 type)  $50.3 \times 37.4 \text{ mm} (2 \times 1.1/2 \text{ in.})$ Total dot number 123 200 (560  $\times$  220)

#### General

Power requirements 7.2 V (battery pack) 8.4 V (AC power adaptor) Average power consumption (when using the battery pack) During camera recording using

LCD 3.3 W Viewfinder 2.5W

Operating temperature 0°C to 40°C (32°F to 104°F) Storage temperature  $-20^{\circ}\text{C to} + 60^{\circ}\text{C}$  $(-4^{\circ}F \text{ to } + 140^{\circ}F)$ 

Dimensions (Approx.)

 $76 \times 93 \times 162 \text{ mm}$ (3 × 3 3/4 × 6 1/2 in.) (w/h/d)

Mass (approx.)

DCR-TRV16/TRV16E/TRV116E: 610 g (1 lb 5 oz) DCR-TRV18/TRV18E/TRV118E: 620 g (1 lb 5 oz) main unit only DCR-TRV16/TRV16E/TRV116E: 700 g (1 lb 8 oz) DCR-TRV18/TRV18E/TRV118E:

710 g (1 lb 9 oz) including the battery pack cassette DVM60 and lens cap Supplied accessories

See page 3.

# AC power adaptor

Power requirements 100 - 240 V AC. 50/60 Hz Power consumption 23 W Output voltage DC OUT: 8.4 V, 1.5 A in the operating mode Operating temperature

0°C to 40°C (32°F to 104°F) Storage temperature  $-20^{\circ}$ C to +  $60^{\circ}$ C ( $-4^{\circ}$ F to +  $140^{\circ}$ F) Dimensions (approx.)

 $125 \times 39 \times 62 \text{ mm}$  $(5 \times 19/16 \times 21/2 \text{ in.}) (w/h/d)$ excluding projecting parts Mass (approx.) 280 g (9.8 oz) excluding mains lead

# **Battery pack**

NP-FM30

Lithium ion

Maximum output voltage DC 8.4 V Output voltage DC 7.2 V Capacity 5.0 Wh (700 mAh) Dimensions (approx.)  $38.2 \times 20.5 \times 55.6 \text{ mm}$  $(1.9/16 \times 13/16 \times 2.1/4 \text{ in.})$ (w/h/d) Mass (approx.) 65 g (2.3 oz) Type

# "Memory Stick" (except DCR-TRV16/ TRV16E/TRV116E)

Memory Flash memory 8 MB: MSA-8A Operating voltage 2.7 - 3.6 VPower consumption Approx. 45 mA in the operating Approx. 130 µA in the standby Dimensions (approx.)  $50 \times 2.8 \times 21.5 \text{ mm}$  $(2 \times 1/8 \times 7/8 \text{ in.}) (w/h/d)$ Mass (approx.) 4 g (0.14 oz)

Design and specifications are subject to change without notice.

EE : East European model NE : North European model : Hong Kong model

AUS: Australian model CH: Chinese model : Tourist model

#### **SAFETY-RELATED COMPONENT WARNING!!**

COMPONENTS IDENTIFIED BY MARK  $\triangle$  OR DOTTED LINE WITH MARK  $\triangle$  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

#### **CAUTION:**

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type.

# ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFÉS PAR UNE MARQUE A SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈSES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPÉMENTS PUBLIÉS PAR SONY.

# **SAFETY CHECK-OUT**

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

- Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
- 2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
- Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
- Look for parts which, through functioning, show obvious signs
  of deterioration. Point them out to the customer and
  recommend their replacement.
- 5. Check the B+ voltage to see it is at the values specified.
- 6. Flexible Circuit Board Repairing
  - Keep the temperature of the soldering iron around 270°C during repairing.
  - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
  - Be careful not to apply force on the conductor when soldering or unsoldering.

#### **Unleaded solder**

Boards requiring use of unleaded solder are printed with the leadfree mark (LF) indicating the solder contains no lead.

(Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size.)

# : LEAD FREE MARK

Unleaded solder has the following characteristics.

• Unleaded solder melts at a temperature about 40°C higher than ordinary solder.

Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.

Soldering irons using a temperature regulator should be set to about  $350^{\circ}\mathrm{C}$ .

Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!

Strong viscosity

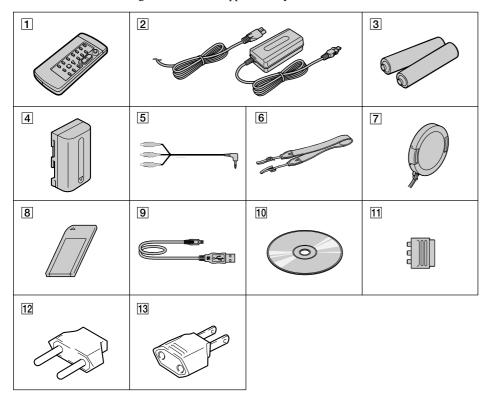
Unleaded solder is more viscous (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.

• Usable with ordinary solder

It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

# • SUPPLIED ACCESSORIES

Make sure that the following accessories are supplied with your camcorder.



- 1 Wireless Remote Commander (1)
- 2 AC-L10A/L10B/L10C AC power adaptor (1), Mains lead (1)
- 3 R6 (size AA) battery for Remote Commander (2)
- 4 Battery pack (1)
- 5 A/V connecting cable (1)
- 6 Shoulder strap (1)
- 7 Lens cap (1)
- 8 "Memory Stick" (1) (DCR-TRV18/TRV18E/TRV118E)

- 9 USB cable (1)
- 10 CD-ROM (1)

SPVD-008 (I) USB Driver

(DCR-TRV18: US/CND model only)

SPVD-008 USB Driver

(except : DCR-TRV18: US/CND model)

11 21-pin adaptor (1)

(for European model only)

12 2-pin conversion adaptor (1)

(DCR-TRV18 : JE/TRV18E : JE model only)

13 2-pin conversion adaptor (1)

(DCR-TRV16 : E, HK/TRV16E : E, HK/ TRV18 : E, HK/TRV18E : E, HK)

# Table for difference of function

Model	DCR- TRV16	DCR-T	TRV16E	DCR- TRV18	DCR-T	RV18E	DCR- TRV116E	DCR- TRV118E
Destination	E, HK, KR	AEP, UK, EE, NE	E, HK, AUS, CH	US, CND, E, HK, JE, KR	AEP, UK, EE, NE	E, HK, AUS, JE, CH	AEP, UK, EE, NE	AEP, UK, EE, NE
Color System	NTSC	PA	AL	NTSC		P	AL	
VTR REC	0	X			X		0	
Memory Stick		X			0		X	0
DV Terminal	IN/OUT	OUT	IN/	OUT	OUT		IN/OUT	
AUDIO/VIDEO Terminal	IN/OUT	OUT	IN/OUT		OUT	JT IN/OUT		
Intelligent Accessory Shoe	1	8-pin connecto	or	1	5-pin connect	or	8-pin connector	15-pin connector

• Abbreviation

CND : Canadian model AUS : Australian model
EE : East European model CH : Chinese model
NE : North European model JE : Tourist model
HK : Hong Kong model KR : Korea model

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<sup>\*</sup> Optical axis frame and Color reproduction frame are shown on pages 188 and 189.



# SECTION 1 SERVICE NOTE

# 1-1. SERVICE NOTE

# 1. POWER SUPPLY DURING REPAIRS

In this unit, about 10 seconds after power is supplied to the battery terminal using the regulated power supply (8.4V), the power is shut off so that the unit cannot operate.

This following two methods are available to prevent this. Take note of which to use during repairs.

#### Method 1:

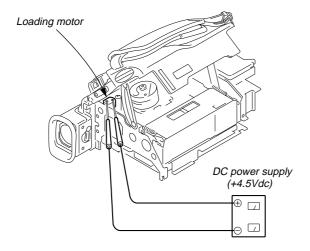
Use the AC power adaptor (AC-L10, AC-VQ800 etc.).

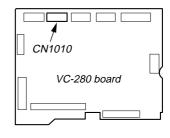
# Method 1:

Connect the servicing remote commander RM-95 (J-6082-053-B) to the LANC jack, and set the commander switch to the "ADJ" side.

# 2. TO TAKE OUT A CASSETTE WHEN NOT EJECT (FORCE EJECT)

- 1 Refer to 2-3. to remove the front panel assembly.
- 2 Refer to 2-5. to remove the top cabinet assembly.
- 3 Refer to 2-6. to remove the cabinet (R) assembly.
- 4 Refer to 2-7. to remove the battery panel section.
- **⑤** Remove the EVF block.
- 6 Open the VA-117 board.
- ① Disconnect CN1010 (27P, 0.3mm) of VC-280 board.
- 8 Open the cassette lid.
- Supply +4.5V from the DC power supply to the loading motor and unload with a pressing the cassette compartment.





# 1-2. SELF-DIAGNOSIS FUNCTION

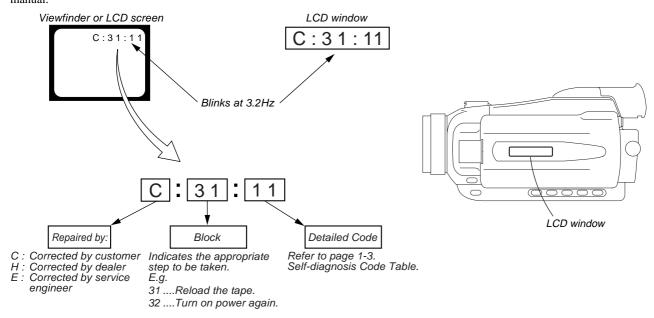
# 1. SELF-DIAGNOSIS FUNCTION

When problems occur while the unit is operating, the self-diagnosis function starts working, and displays on the viewfinder, LCD screen or LCD window what to do. This function consists of two display; self-diagnosis display and service mode display.

Details of the self-diagnosis functions are provided in the Instruction

# 2. SELF-DIAGNOSIS DISPLAY

When problems occur while the unit is operating, the counter of the viewfinder, LCD screen or LCD window consists of an alphabet and 4-digit numbers, which blinks at 3.2 Hz. This 5-character display indicates the "repaired by:", "block" in which the problem occurred, and "detailed code" of the problem.

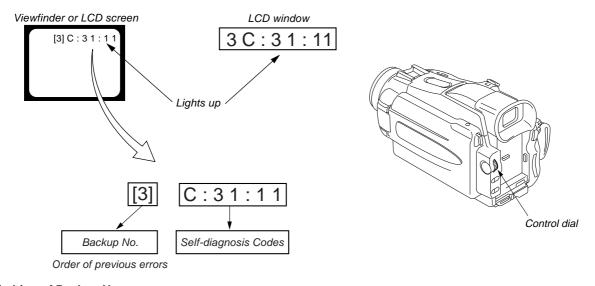


#### 3. SERVICE MODE DISPLAY

The service mode display shows up to six self-diagnosis codes shown in the past.

#### 3-1. Display Method

While pressing the "STOP" key, set the switch from OFF to "VCR", and continue pressing the "STOP" key for 5 seconds continuously. The service mode will be displayed, and the counter will show the backup No. and the 5-character self-diagnosis codes.



# 3-2. Switching of Backup No.

By rotating the control dial, past self-diagnosis codes will be shown in order. The backup No. in the [] indicates the order in which the problem occurred. (If the number of problems which occurred is less than 6, only the number of problems which occurred will be shown.)

- [1] : Occurred first time [4] : Occurred fourth time [2] : Occurred second time [5] : Occurred fifth time
- [3]: Occurred third time [5]: Occurred third time

# 3-3. End of Display

Turning OFF the power supply will end the service mode display.

Note: The "self-diagnosis display" data will be kept even if the lithium battery (CK-108 board BT5201 of the cabinet (R) assembly) is removed.

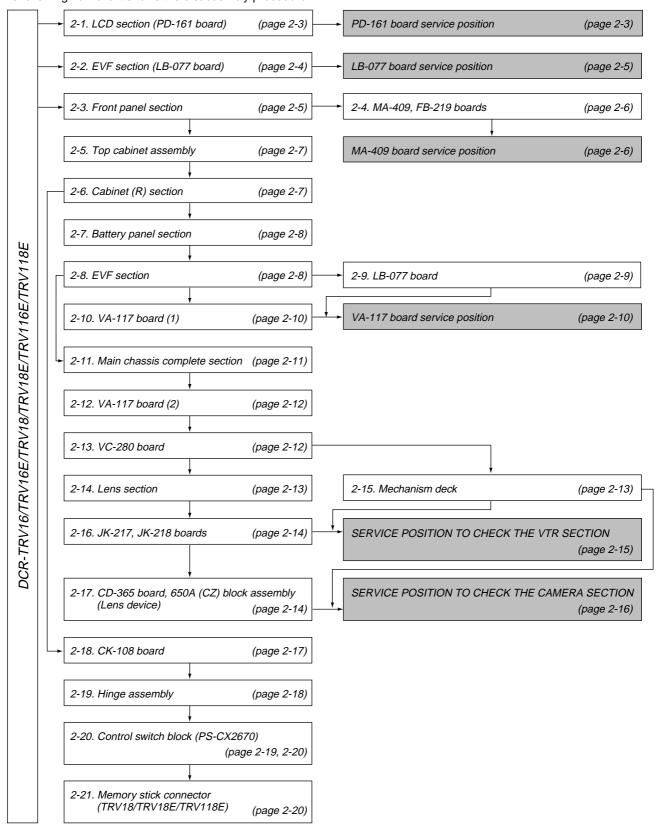
# 4. SELF-DIAGNOSIS CODE TABLE

C 3 1 2 2 1 Winding S reel fault.  C 3 1 2 2 Treel fault when counting the rest of tape.  C 3 1 2 2 Treel fault when counting the rest of tape.  C 3 1 2 2 Treel fault when counting the rest of tape.  C 3 1 2 2 Treel fault.  Load the tape again, and perform operations from the beginn to the beginn out.  Load the tape again, and perform operations from the beginn to the tape again, and perform operations from the beginning.  C 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Self-diagnosis Code		de				
C   2   1   0   0   Condensation   Remove the cassette, and insert it again after one hour.	Repaired by:	Block Detailed Function Code				Correction	
C   2   2   0   0   Video head is dirty.   Clean with the optional cleaning cassette.						-	·
C   3   1   1   0   LOAD direction. Loading does not complete within specified time   Load the tape again, and perform operations from the beginn   C   3   1   2   1   Winding S reel fault when counting the rest of tape.   Load the tape again, and perform operations from the beginn   C   3   1   2   2   1   Treel fault   Load the tape again, and perform operations from the beginn   Load the tape again, and perform operations fro							-
complete within specified time  C 3 1 2 0 Treel side tape slacking when unloading.  C 3 1 2 2 Treel fault.  Load the tape again, and perform operations from the beginn the beginning.  C 3 1 2 2 Treel fault.  Load the tape again, and perform operations from the beginning.  C 3 1 2 2 Treel fault.  Load the tape again, and perform operations from the beginning.  C 3 1 2 2 Treel fault.  Load the tape again, and perform operations from the beginn the period of the tape again, and perform operations from the beginn the period of the tape again, and perform operations from the beginn of the tape again, and perform operations from the beginn of the tape again, and perform operations from the beginn operations from the beginn of the tape again, and perform operations from the beginn operations from the beginning.  C 3 1 1 1 1 UNLOAD direction loading motor time-out.  C 3 2 2 2 1 Treel side tape slacking when unloading.  C 3 2 2 2 Treel fault when counting the rest of tape.  T reel side tape again, and perform operations from the beginn operations from the beginn operations from the beginning.  Remove the battery or power cable, connect, and perform operations from the beginning.  Remove the battery or power cable, connect, and perform operations from the beginning.  T reel fault.  Remove the battery or power cable, connect, and perform operations from the beginning.  Remove the battery or power cable, connect, and perform operations from the beginning.  Remove the battery or power cable, connect, and perform operations from the beginning.  Remove the battery or power cable, connect, and perform operations from the beginning.  Remove the battery or power cable, connect, and pe	_					-	Clean with the optional cleaning cassette.
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C   3	С	3	1	2	3	S reel fault.	Load the tape again, and perform operations from the beginning.
C   3	С	3	1	2	4	T reel fault.	Load the tape again, and perform operations from the beginning.
C   3	С	3	1	3	0	FG fault when starting capstan.	Load the tape again, and perform operations from the beginning.
C 3 1 1 0 0 LOAD direction loading motor time- out.	С	3	1	4	0	FG fault when starting drum.	Load the tape again, and perform operations from the beginning.
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C 3 2 4 0 FG fault when starting drum operations from the beginning.  C 3 2 4 2 FG fault during normal drum operations from the beginning.  E 6 1 0 0 Difficult to adjust focus (Cannot initialize focus.)  E 6 1 1 0 Som operations fault (Cannot initialize zoom lens.)  E 6 2 0 0 Steadyshot function does not work well.  E 6 2 0 1 Steadyshot function does not work well.  E 6 2 0 1 (With pitch angular velocity sensor output stopped.)  E 6 2 0 1 (With yaw angular velocity sensor output parisheral circuits.)  Inspect the lens block focus reset sensor (Pin ® of CN120 of 280 board) when focusing is performed when the focus motor drive circuit (IC 280 board) when zooming is not performed.  Inspect the lens block zoom reset sensor (Pin ® of CN120 of VC-280 board) when zooming is performed when the zoom leading operated and the zoom motor drive circuit (IC1204 of VC 280 board) when zooming is not performed.  Inspect pitch angular velocity sensor (SE5302 of JK-217 boar peripheral circuits.)  Inspect yaw angular velocity sensor (SE5301 of JK-217 boar parisheral circuits)	С	3	2	3	0	FG fault when starting capstan.	
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E 6 1 1 0 Zoom operations fault (Cannot initialize zoom lens.)  E 6 2 0 0 Steadyshot function does not work well. (With pitch angular velocity sensor output stopped.)  E 6 2 0 1 Steadyshot function does not work well. (With pitch angular velocity sensor output stopped.)  Steadyshot function does not work well. (With yaw angular velocity sensor output stopped.)  Inspect pitch angular velocity sensor (SE5302 of JK-217 boar peripheral circuits.	Е	6	1	0	0	,	Inspect the lens block focus reset sensor (Pin ® of CN1201 of VC-280 board) when focusing is performed when the focus ring is rotated in the focus manual mode, and the focus motor drive circuit (IC1204 of VC-280 board) when the focusing is not performed.
E 6 2 0 0 (With pitch angular velocity sensor output stopped.)  Inspect pitch angular velocity sensor (SE5302 of JK-217 box peripheral circuits.  Steadyshot function does not work well. (With yaw angular velocity sensor output peripheral circuits)	Е	6	1	1	0	(Cannot initialize zoom lens.)	Inspect the lens block zoom reset sensor (Pin ②) of CN1201 of VC-280 board) when zooming is performed when the zoom lens is operated and the zoom motor drive circuit (IC1204 of VC-280
E 6 2 0 1 (With yaw angular velocity sensor output Inspect yaw angular velocity sensor (SE5301 of JK-217 boar	Е	6	2	0	0	(With pitch angular velocity sensor output	Inspect pitch angular velocity sensor (SE5302 of JK-217 board) peripheral circuits.
	Е	6	2	0	1	Steadyshot function does not work well.	Inspect yaw angular velocity sensor (SE5301 of JK-217 board) peripheral circuits.

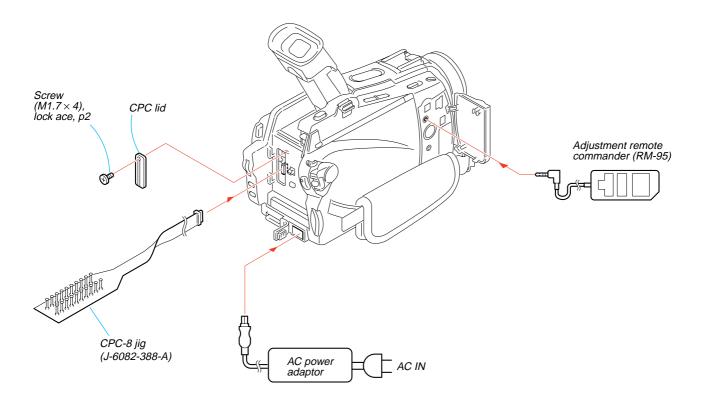


# SECTION 2 DISASSEMBLY

The following flow chart shows the disassembly procedure.

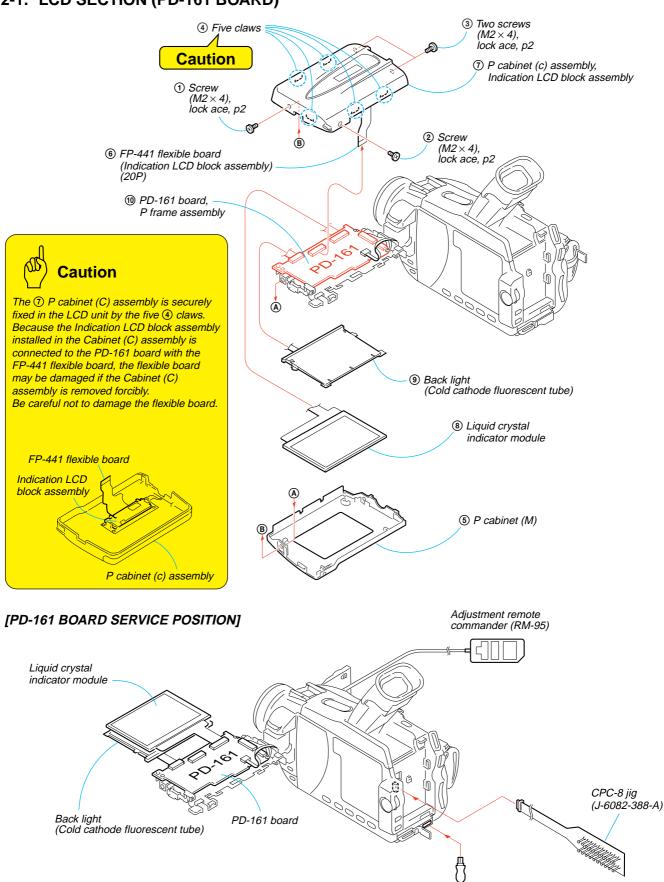


# [Equipment connection]

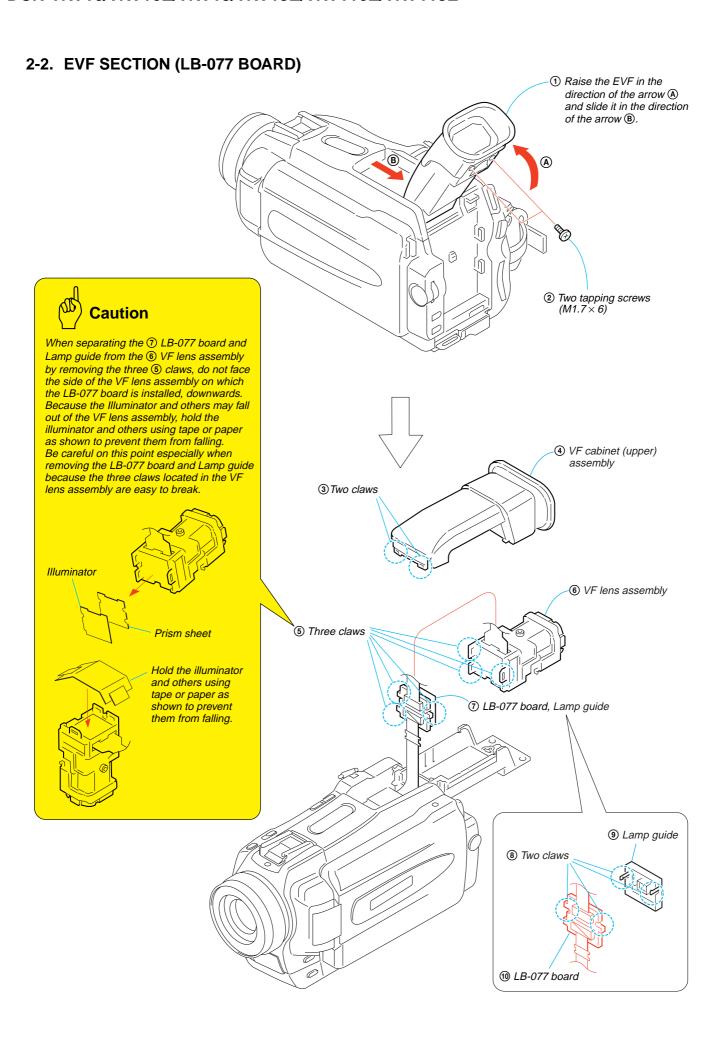


**NOTE:** Follow the disassembly procedure in the numerical order given.

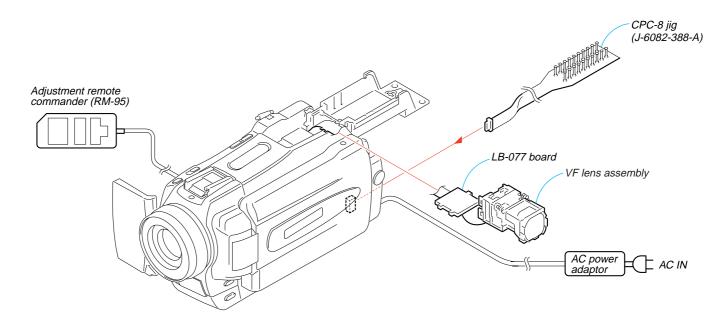
# 2-1. LCD SECTION (PD-161 BOARD)



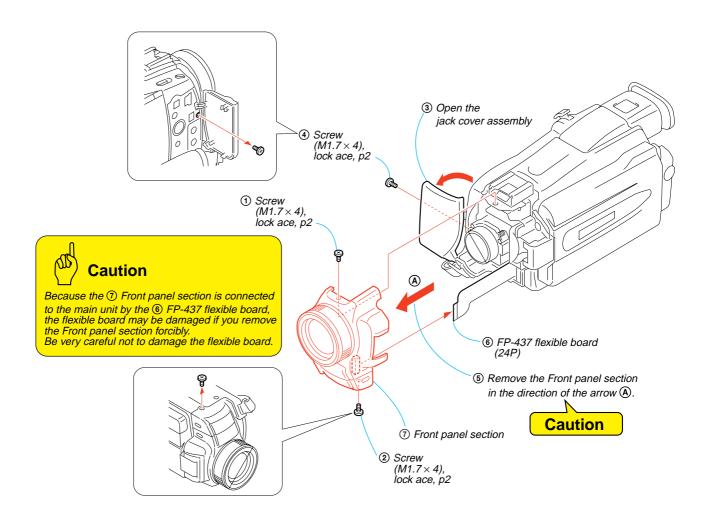
AC power adaptor



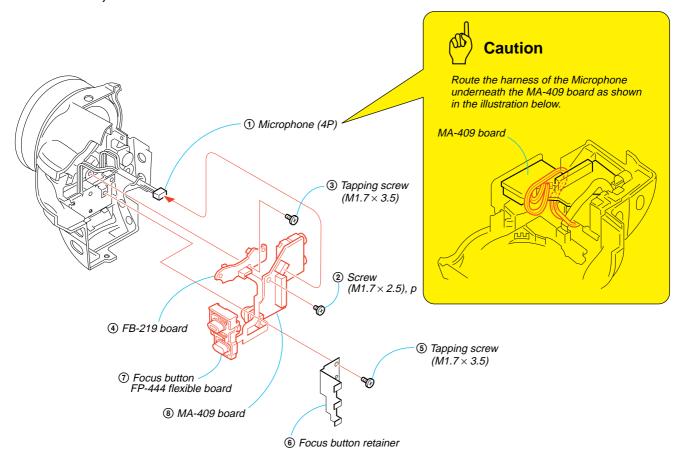
# [LB-077 BOARD SERVICE POSITION]



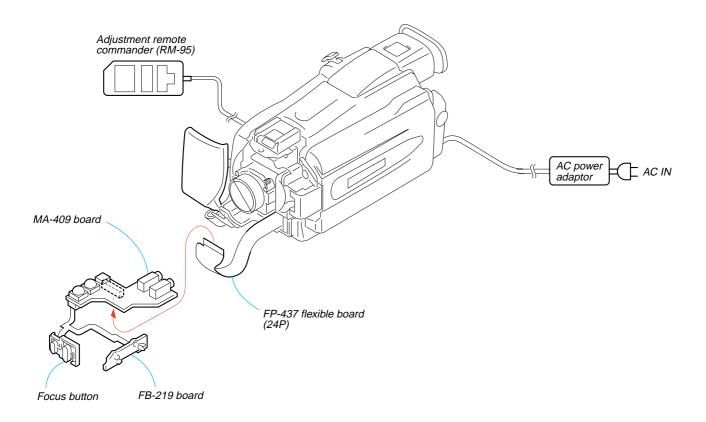
# 2-3. FRONT PANEL SECTION



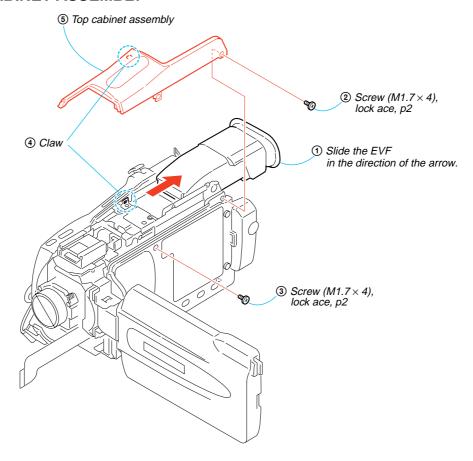
# 2-4. MA-409, FB-219 BOARDS



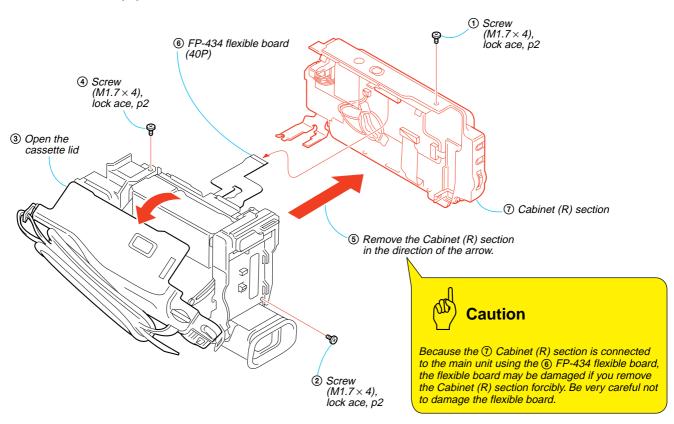
# [MA-409 BOARD SERVICE POSITION]



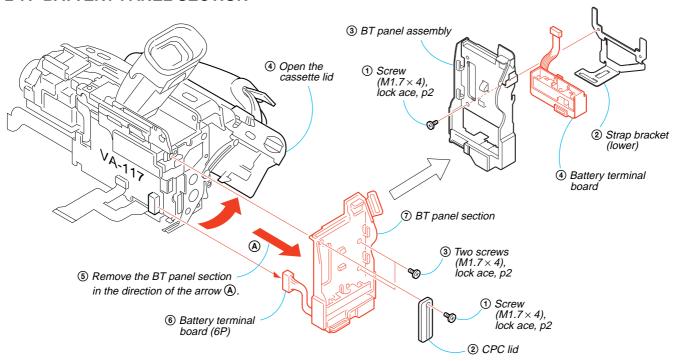
# 2-5. TOP CABINET ASSEMBLY



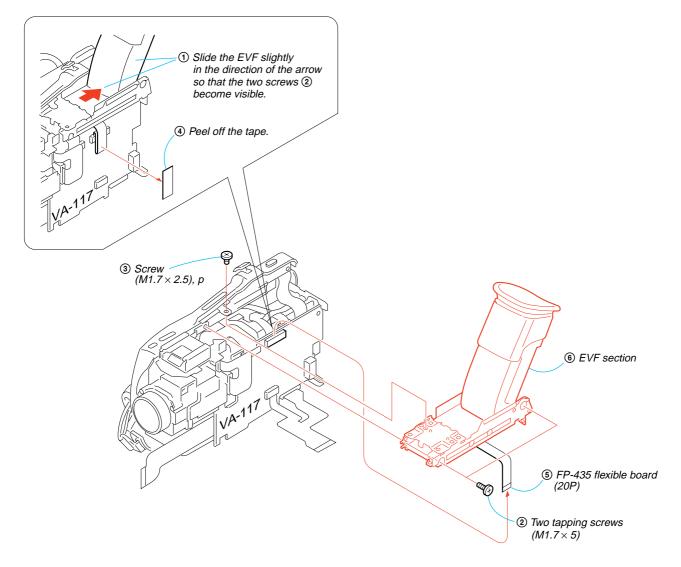
# 2-6. CABINET (R) SECTION



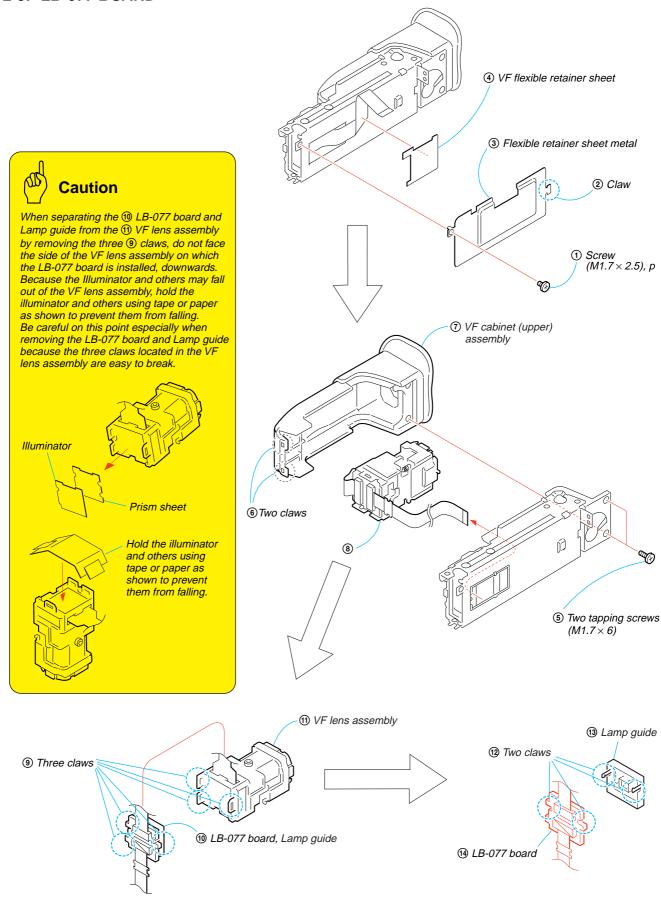
# 2-7. BATTERY PANEL SECTION



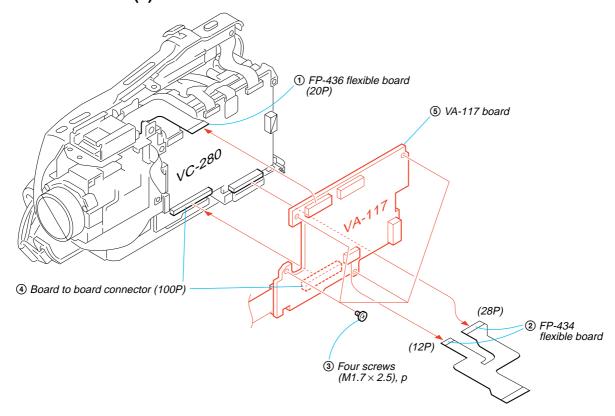
# 2-8. EVF SECTION



# 2-9. LB-077 BOARD



# 2-10. VA-117 BOARD (1)



# [VA-117 BOARD SERVICE POSITION]

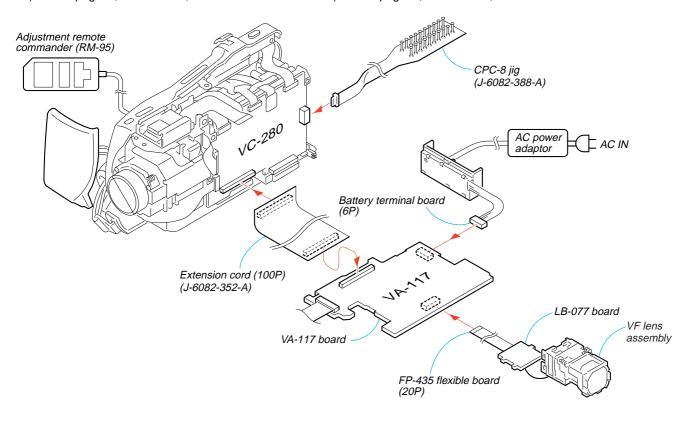
To check the EVF circuit (IC4201 and IC4202), connect the LB-077 board to the VF lens assembly, and then set the camera to the "Forced EVF ON" mode.

# Setting the "Forced EVF Power ON" mode

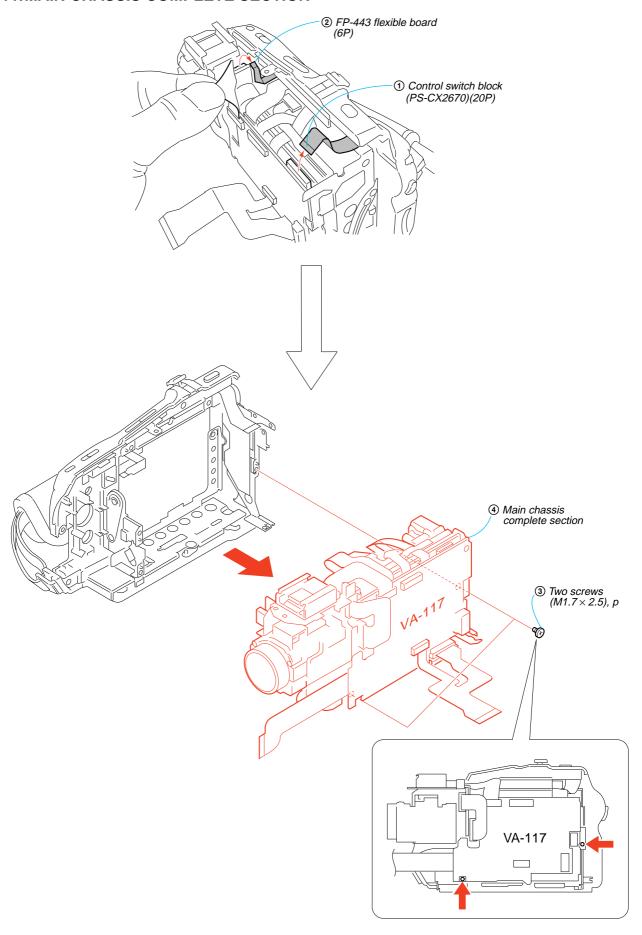
- 1) Select page: 0, address: 10, and set data: 00.
- 2) Select page: 3, address: C4, and set data: 67.
- 3) Select page: 3, address: C5, and set data: 01.

# **Exiting the "Forced EVF Power ON" mode**

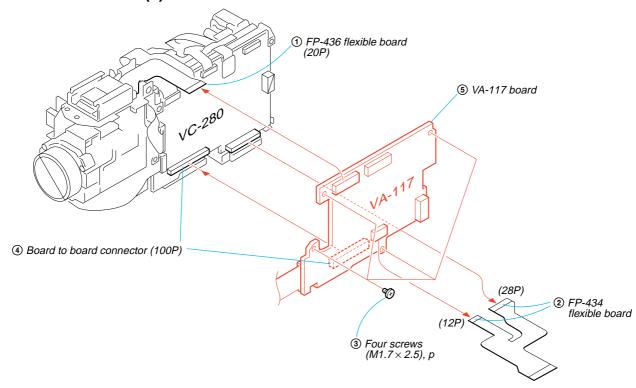
- 1) Select page: 0, address: 10, and set data: 00.
- 2) Select page: 3, address: C4, and set data: 00.
- 3) Select page: 3, address: C5, and set data: 00.



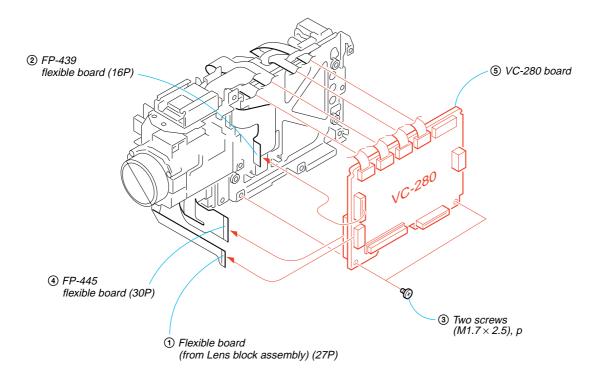
# 2-11. MAIN CHASSIS COMPLETE SECTION



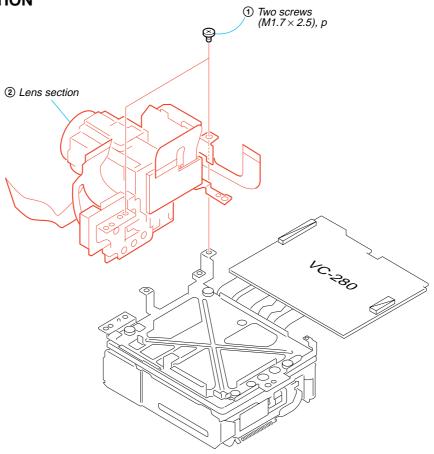
# 2-12. VA-117 BOARD (2)



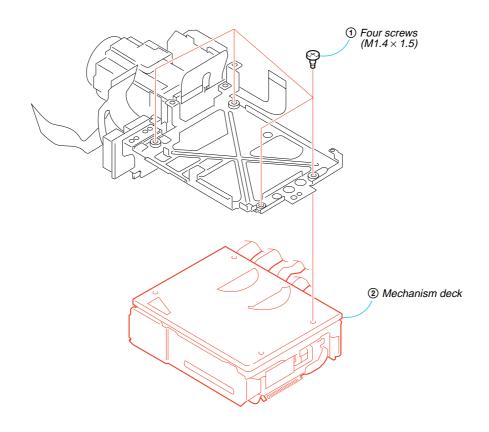
# 2-13.VC-280 BOARD



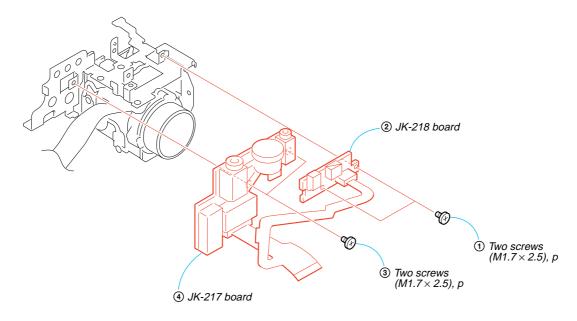
# 2-14.LENS SECTION



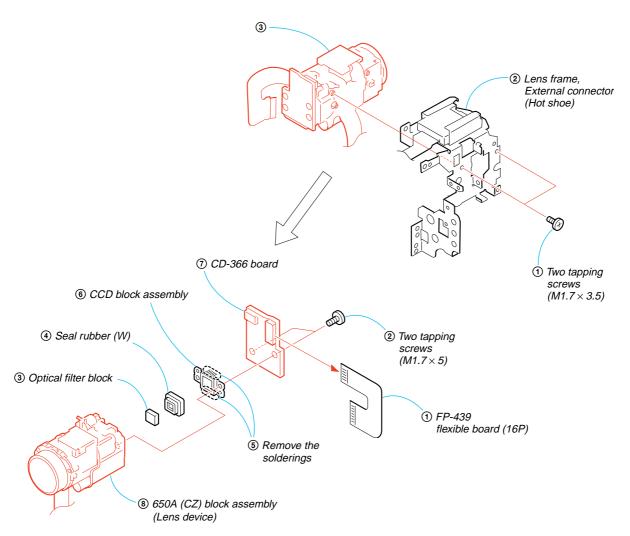
# 2-15. MECHANISM DECK



# 2-16. JK-217, JK-218 BOARDS



# 2-17.CD-365 BOARD, 650A (CZ) BLOCK ASSEMBLY (LENS DEVICE)



# [SERVICE POSITION TO CHECK THE VTR SECTION]

# **Connection to Check the VTR Section**

To check the VTR section, set the VTR to the "Forced VTR power ON" mode.

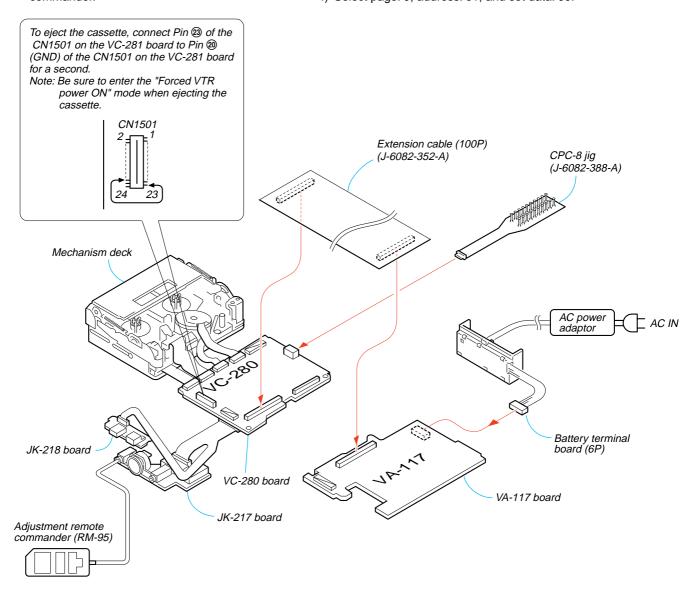
Operate the VTR functions using the adjustment remote commander (with the HOLD switch set in the OFF position).

# Setting the "Forced VTR Power ON" mode

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 0, address: 10, and set data: 00.
- Select page: D, address: 10, set data: 02, and press the PAUSE button of the adjustment remote commander.

# **Exiting the "Forced VTR Power ON" mode**

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 0, address: 10, and set data: 00.
- 3) Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 4) Select page: 0, address: 01, and set data: 00.



# [SERVICE POSITION TO CHECK THE CAMERA SECTION]

# **Connection to Check the Camera Section**

To check the CAMERA section, set the CAMERA to the "Forced camera power ON" mode.

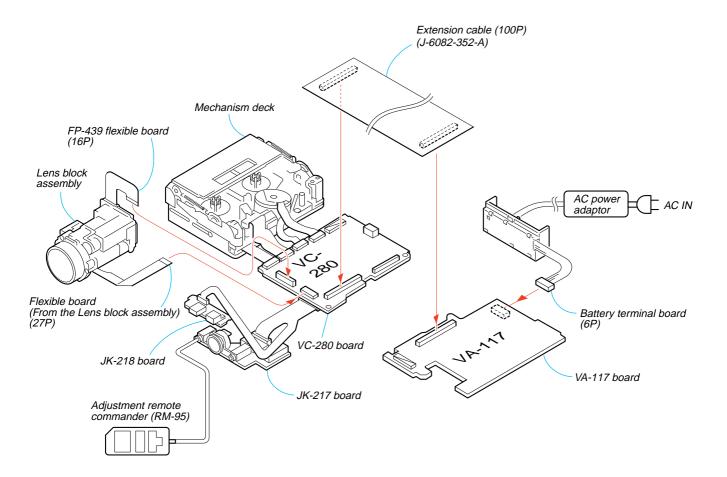
When you want to operate the ZOOM and FOCUS, use the controls on the remote commander (with HOLD switch off).

# Setting the "Forced Camera Power ON" mode

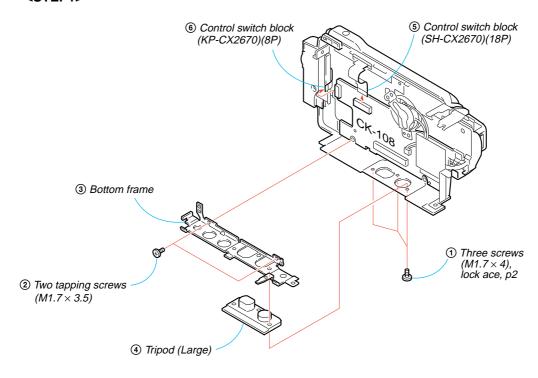
- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 0, address: 10, and set data: 00.
- Select page: D, address: 10, set data: 01, and press the PAUSE button of the adjustment remote commander.

# **Exiting the "Forced Camera Power ON" mode**

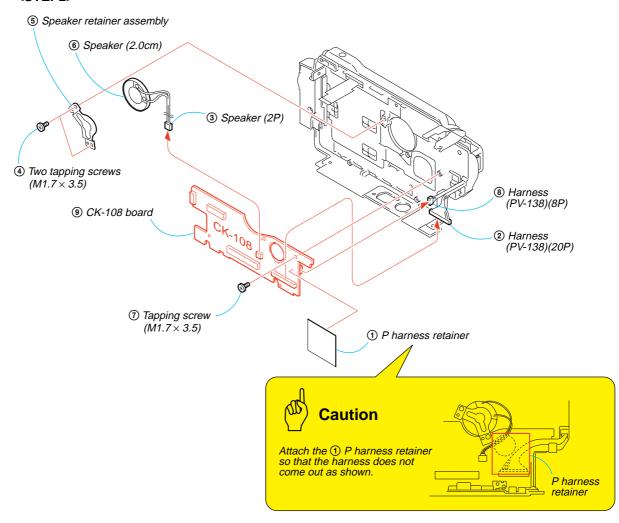
- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 0, address: 10, and set data: 00.
- 3) Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjustment remote commander.
- 4) Select page: 0, address: 01, and set data: 00.



# 2-18.CK-108 BOARD <STEP1>

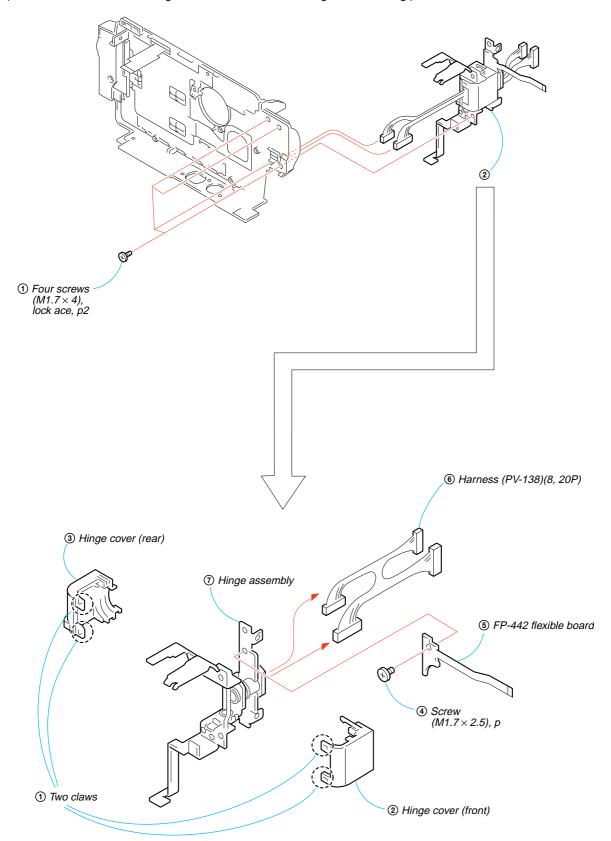


# <STEP2>

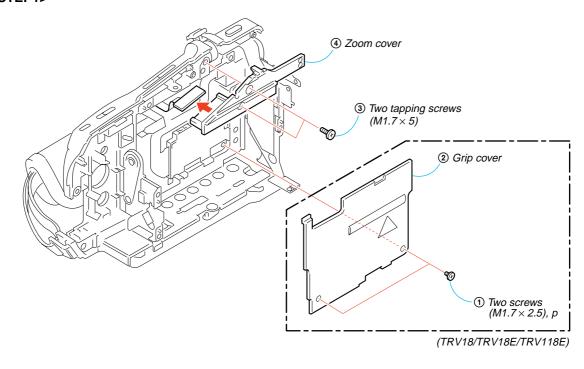


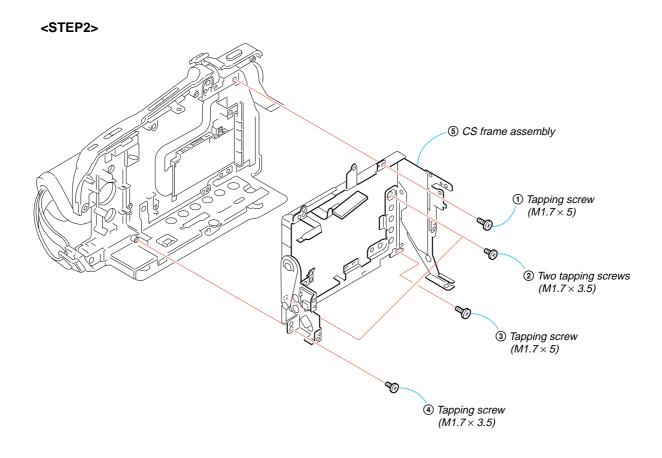
# 2-19. HINGE ASSEMBLY

(Remove the LCD unit referring to section 2-1 before starting disassembling.)

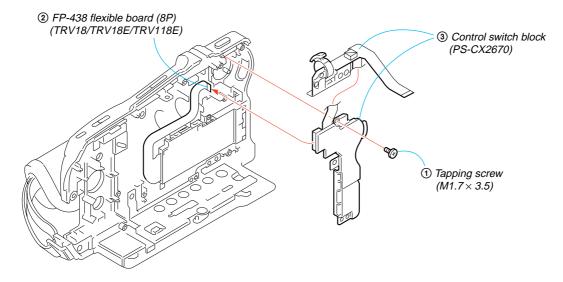


# 2-20. CONTROL SWITCH BLOCK (PS-CX2670) <STEP1>

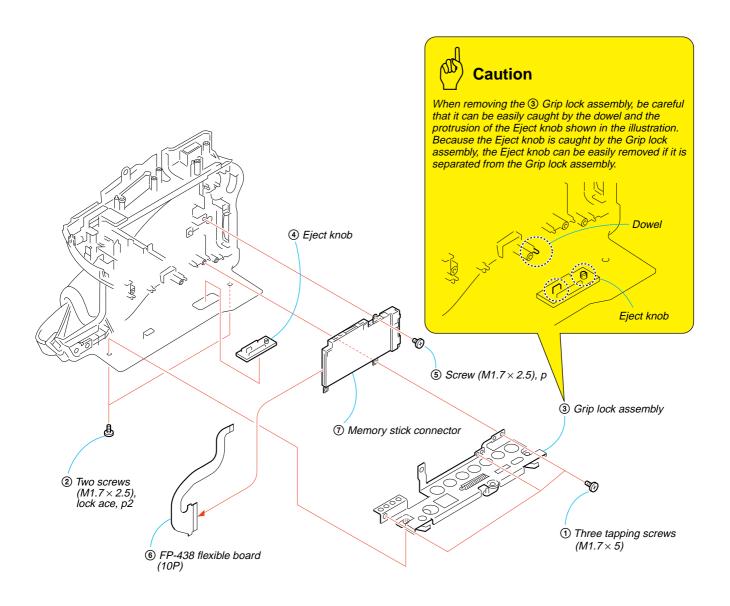




# <STEP3>

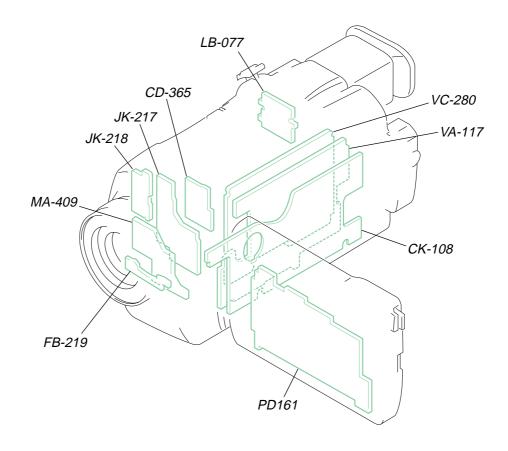


# 2-21. MEMORY STICK CONNECTOR (TRV18/TRV18E/TRV118E)





# 2-22. CIRCUIT BOARDS LOCATION

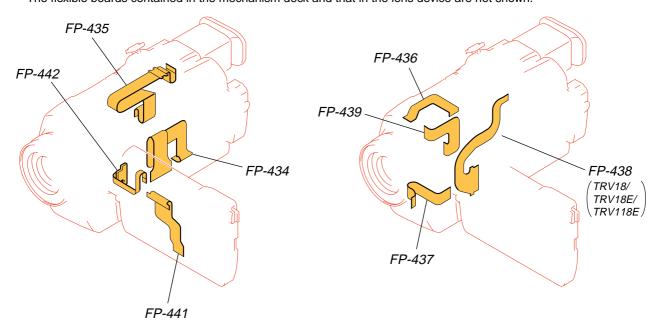


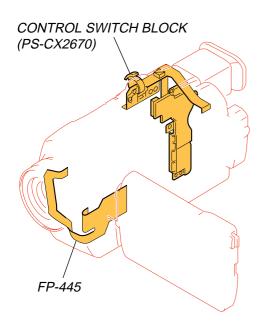
NAME	FUNCTION
CD-365	CCD IMAGER
CK-108	SWITCH, CONNECTOR
FB-219	MANUAL FOCUS SENSOR
JK-217	STEADY SHOT, A/V IN/OUT
JK-218	DIGITAL IN/OUT
LB-077	EVF, EVF BACK LIGHT
MA-409	MIC IN, HP JACK, REMOTE CONTROL RECEIVER, SWITCH
PD-161	RGB DRIVE, TIMING GENERATOR, LCD DRIVE, BACK LIGHT
VA-117	AUDIO/VIDEO SIGNAL PROCESS
VC-280	CAMERA PROCESS, MPEG/DIGITAL STILL PROCESS, VIDEO/AUDIO SIGNAL PROCESS,
V C-200	SERVO, CAMERA/MECHA/HI CONTROL

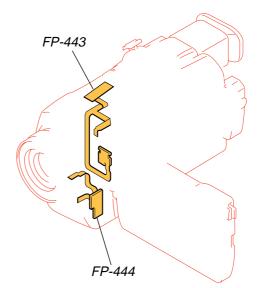


# 2-23. FLEXIBLE BOARDS LOCATION

The flexible boards contained in the mechanism deck and that in the lens device are not shown.









# 3. BLOCK DIAGRAMS

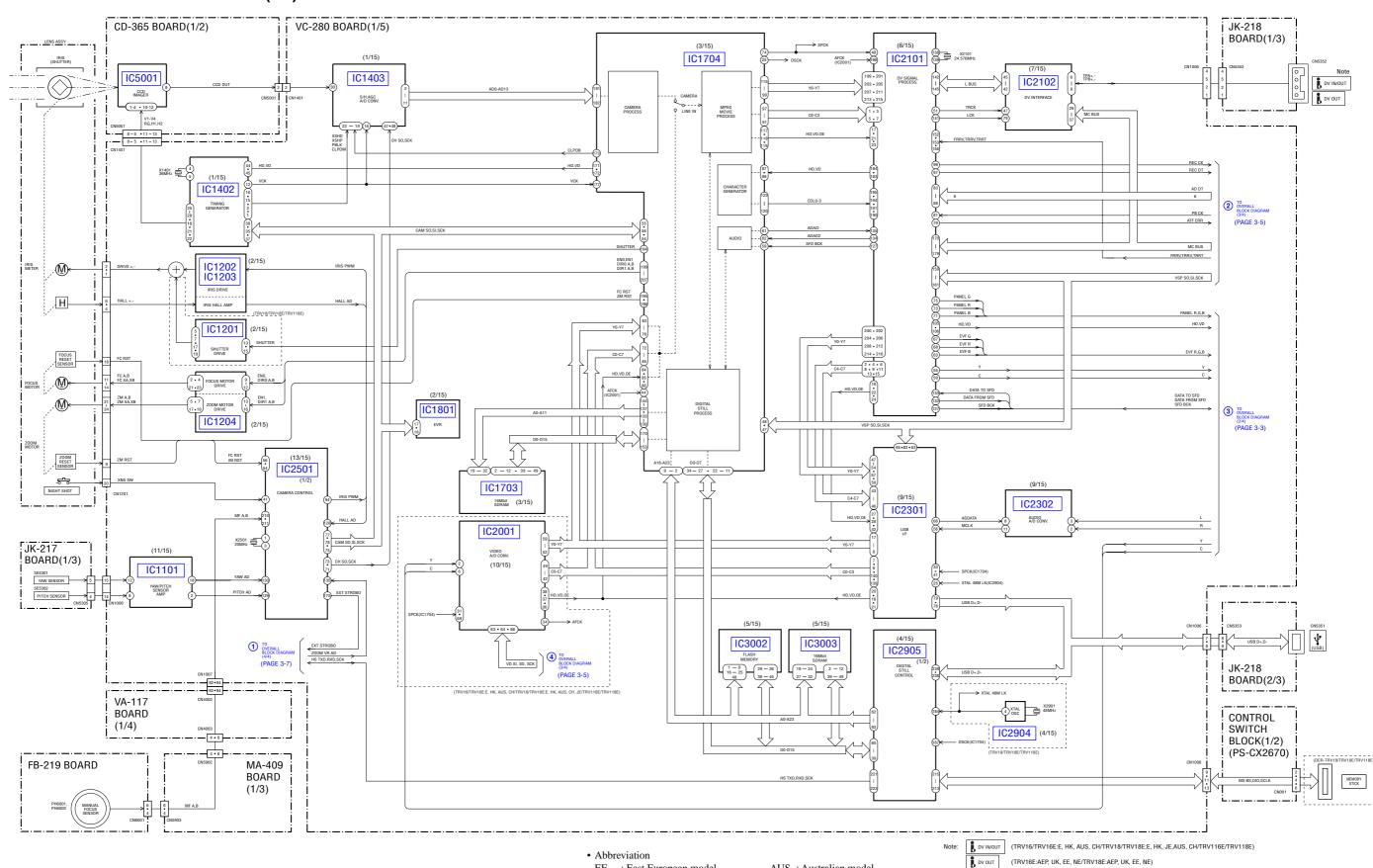
# OVERALL BLOCK DIAGRAM (1/4) OVERALL BLOCK DIAGRAM (2/4) OVERALL BLOCK DIAGRAM (2/4) OVERALL BLOCK DIAGRAM (3/4) OVERALL BLOCK DIAGRAM (3/4) OVERALL BLOCK DIAGRAM (4/4)



**SECTION 3 BLOCK DIAGRAMS** 

3. BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM (1/4) (): Number in parenthesis () indicates the division number of schematic diagram where the component is located.



EE : East European model

: North European model HK : Hong Kong model

AUS : Australian model CH : Chinese model

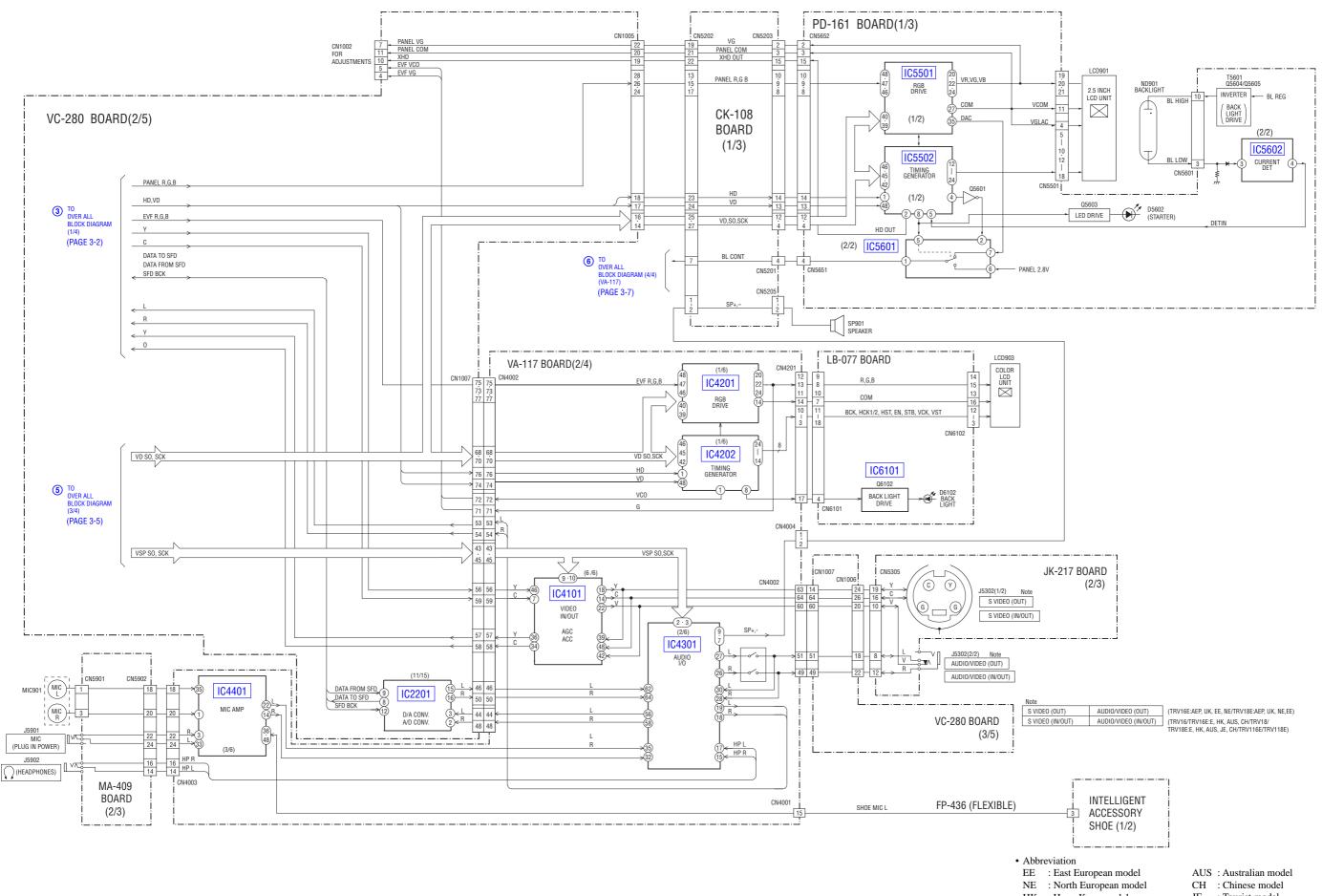
JE : Tourist model

3-1 3-2



# 3. BLOCK DIAGRAMS

3-2. OVERALL BLOCK DIAGRAM (2/4) (): Number in parenthesis () indicates the division number of schematic diagram where the component is located.



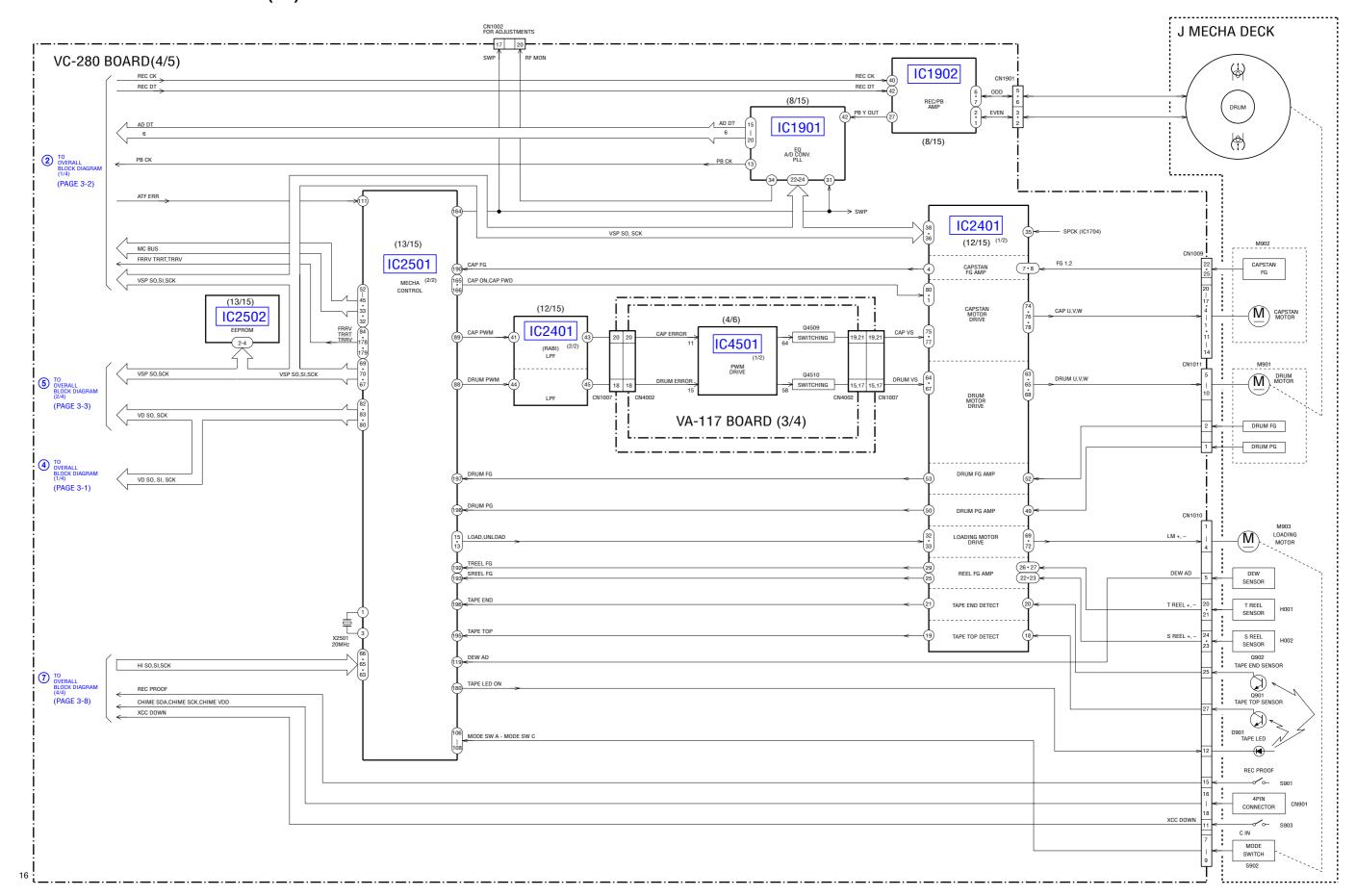
3-3

3-4



# 3. BLOCK DIAGRAMS

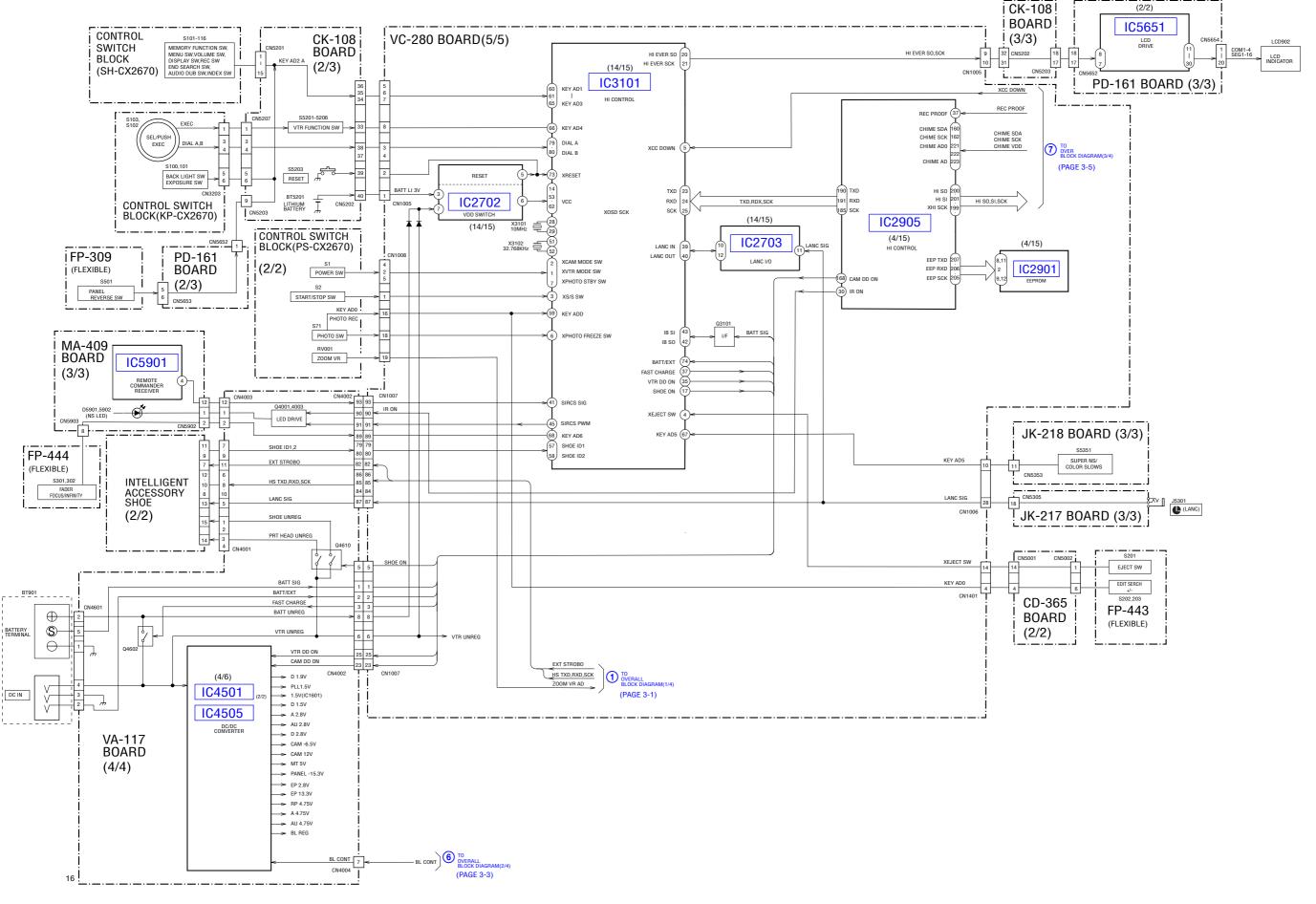
**3-3. OVERALL BLOCK DIAGRAM (3/4)** (): Number in parenthesis () indicates the division number of schematic diagram where the component is located.



3-5

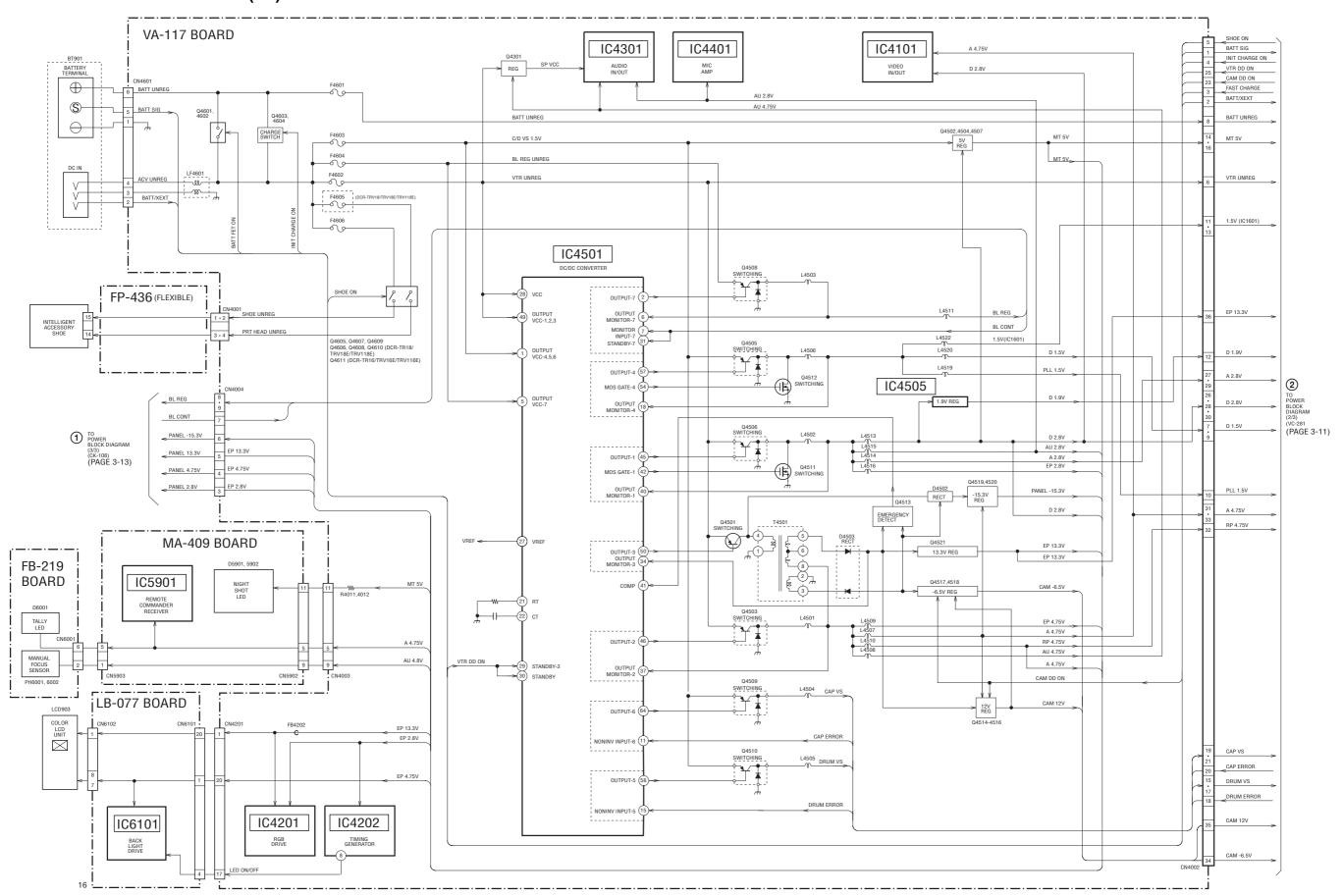


3-4. OVERALL BLOCK DIAGRAM (4/4) (): Number in parenthesis () indicates the division number of schematic diagram where the component is located.



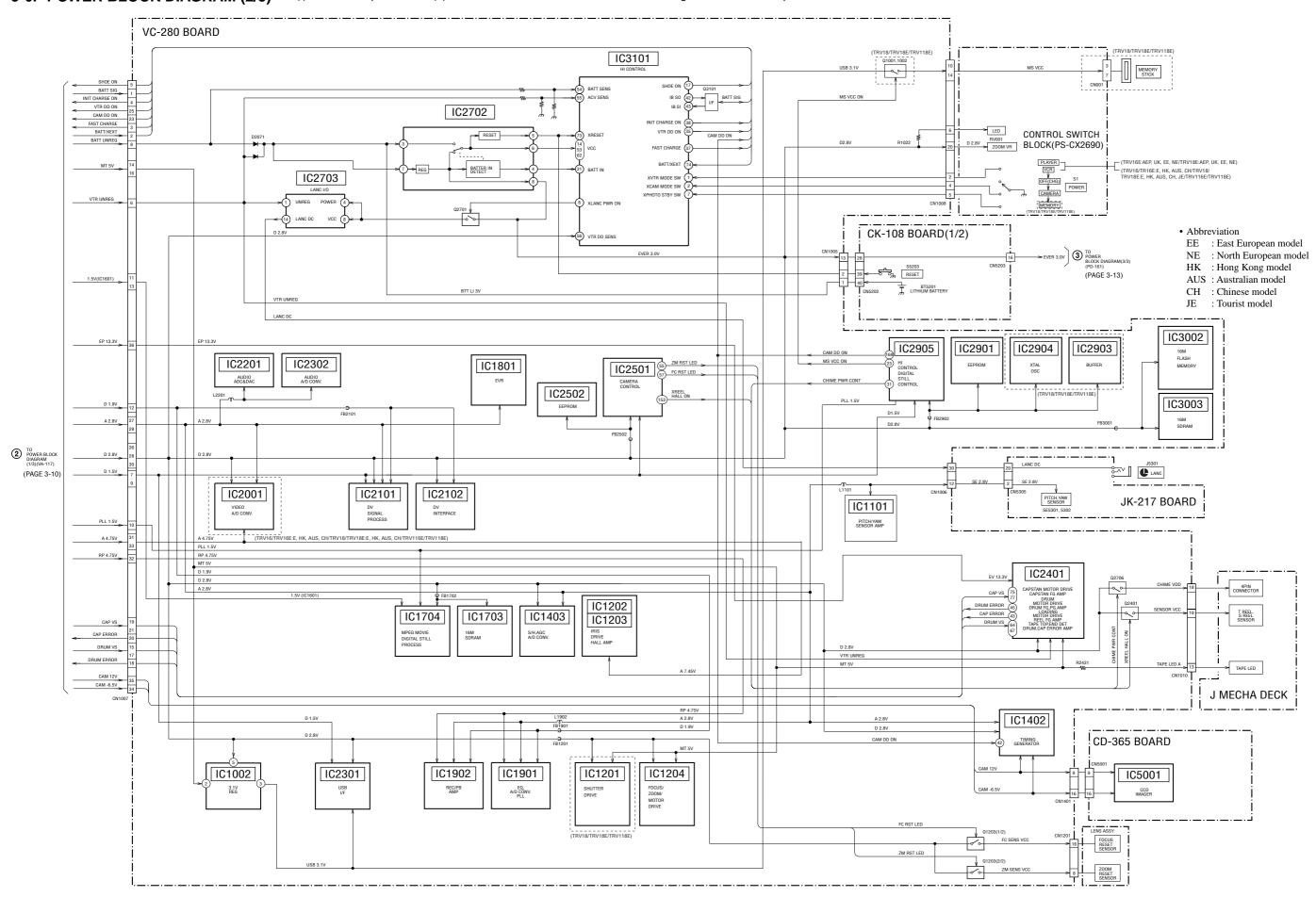


3-5. POWER BLOCK DIAGRAM (1/3) (): Number in parenthesis () indicates the division number of schematic diagram where the component is located.



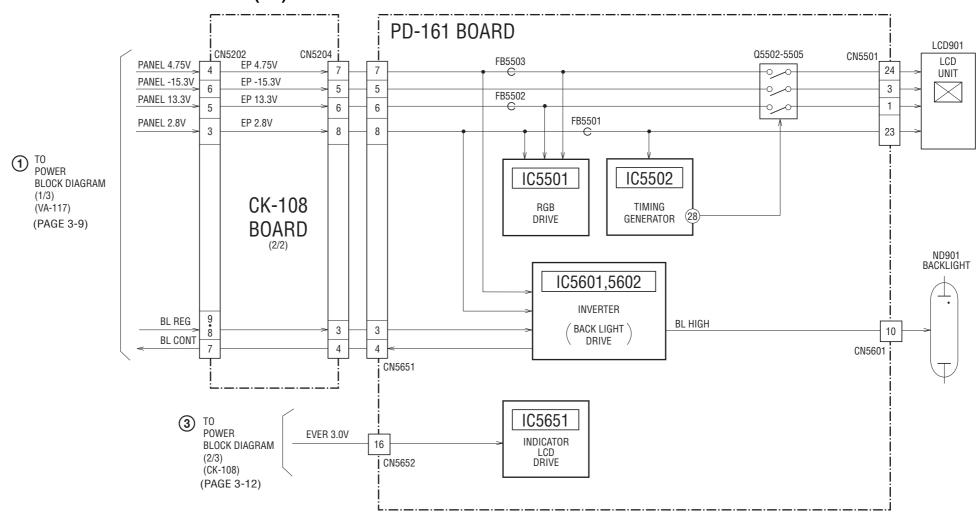


3-6. POWER BLOCK DIAGRAM (2/3) (): Number in parenthesis () indicates the division number of schematic diagram where the component is located.





3-7. POWER BLOCK DIAGRAM (3/3) (): Number in parenthesis () indicates the division number of schematic diagram where the component is located.



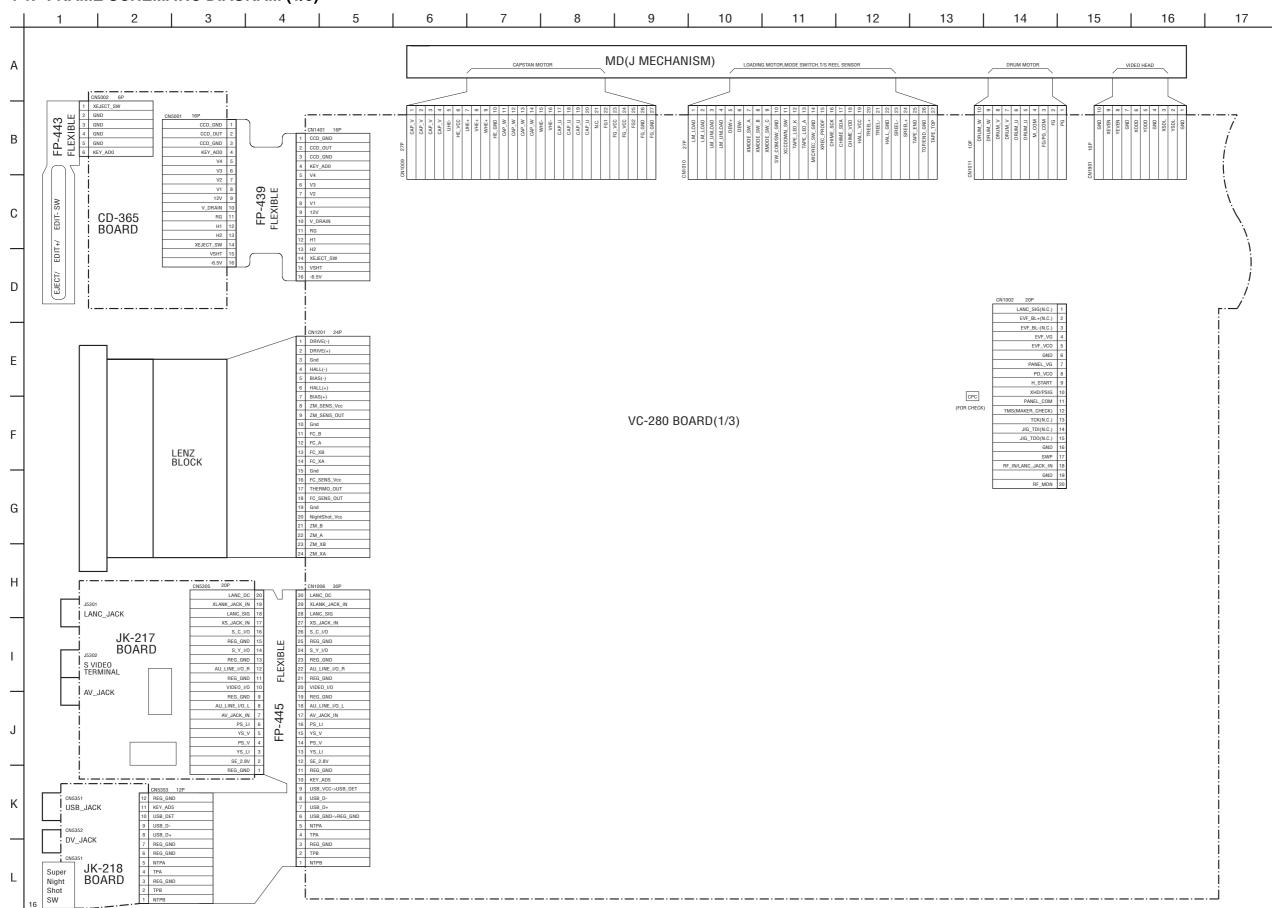
3-13 3-14E



4-3. PRINTED WIRING BOARDS

## SECTION 4 PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

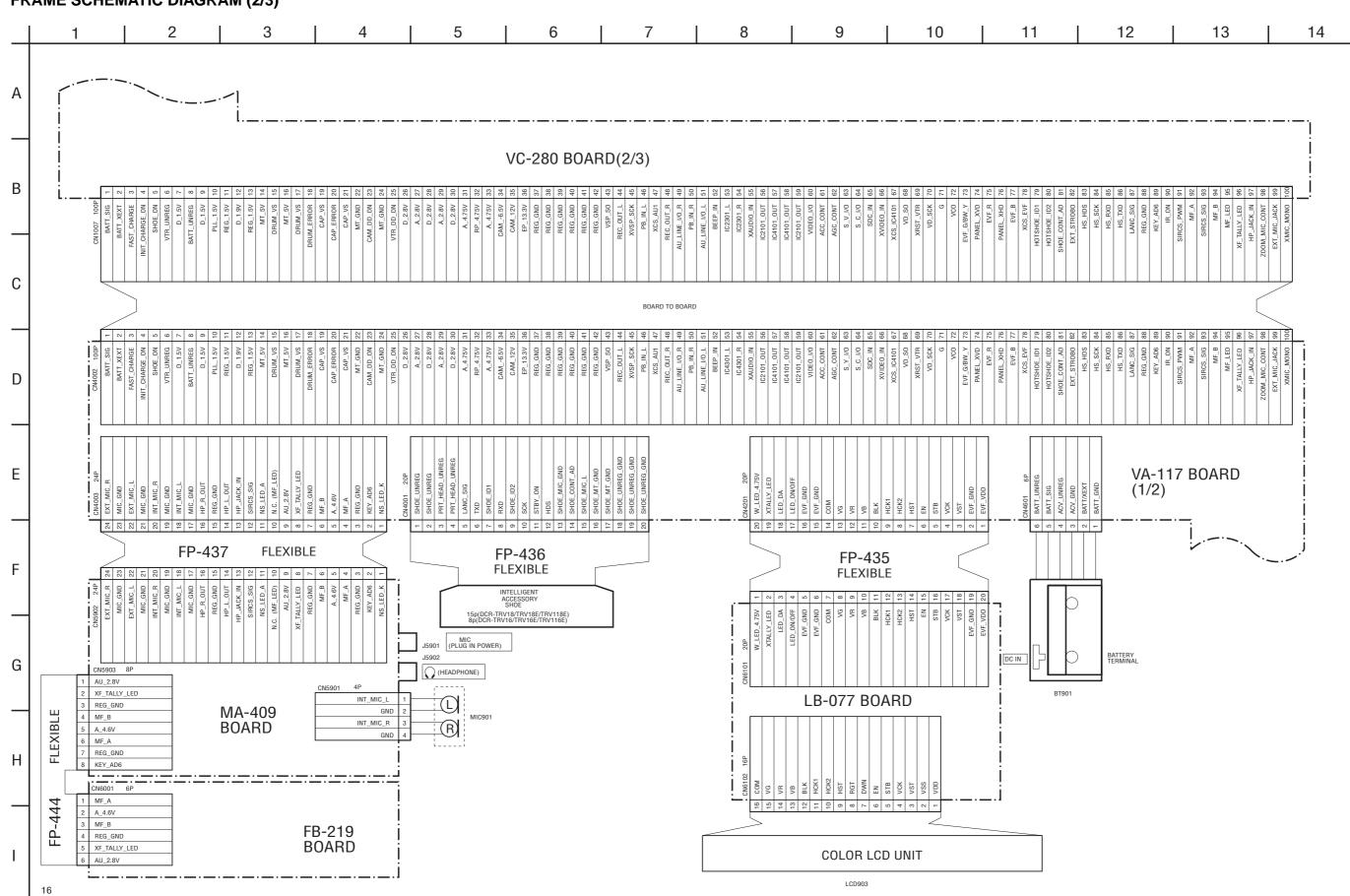
#### 4-1. FRAME SCHEMATIC DIAGRAM (1/3)





4-3. PRINTED WIRING BOARDS

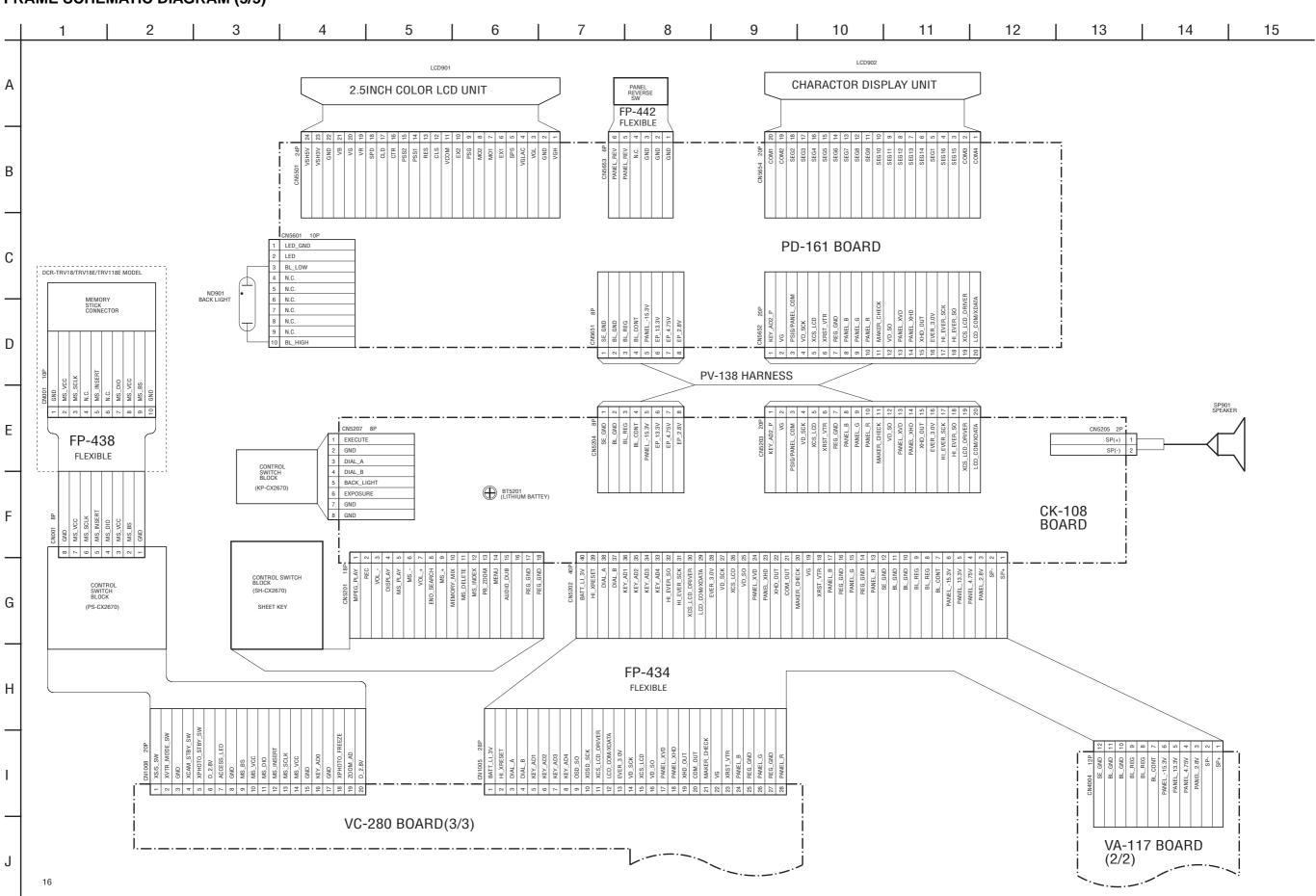






4-3. PRINTED WIRING BOARDS

#### FRAME SCHEMATIC DIAGRAM (3/3)



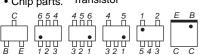
4-3. PRINTED WIRING BOARDS

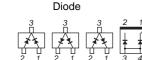
#### THIS NOTE IS COMMON FOR WIRING BOARDS AND SCHEMATIC DIAGRAMS (In addition to this, the necessary note is printed in each block)

#### (For printed wiring boards)

- : Pattern from the side which enables seeing. (The other layers' patterns are not indicated.)
- Through hole is omitted.
- Circled numbers refer to waveforms.
- There are few cases that the part printed on diagram isn't mounted in this model.

· Chip parts. Transistor



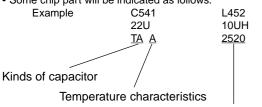


#### (For schematic diagrams)

- All capacitors are in μF unless otherwise noted. p: pF. 50V or less are not indicated except for electrolytics and tantalums
- Chip resistors are 1/10W unless otherwise noted.  $k\Omega$ =1000Ω,  $M\Omega$ =1000 $k\Omega$ .
- · Caution when replacing chip parts.
- New parts must be attached after removal of chip.

Be careful not to heat the minus side of tantalum capacitor, Because it is damaged by the heat.

Some chip part will be indicated as follows.



External dimensions (mm)

- Constants of resistors, capacitors, ICs and etc with XX indicate that they are not used.
- In such cases, the unused circuits may be indicated.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Signal name
- $XEDIT \rightarrow \overline{EDIT}$  PB/XREC  $\rightarrow$  PB/REC
- Immable resistor
- + : fusible resistor
- : panel designation
- : B+ Line \*
- === : B- Line \*
- : IN/OUT direction of (+,-) B LINE. \*
- \_\_\_\_\_ : adjustment for repair. \*
- Circled numbers refer to waveforms. \* \* Indicated by the color red.

#### Note:

The components identified by mark riangle or dotted line with mark ⚠ are critical for safety.

Replace only with part number specified.

#### Note:

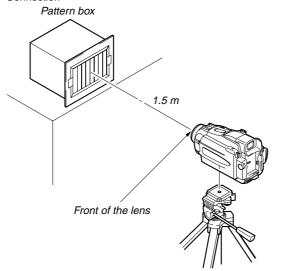
Les composants identifiés par une marque riangle sont critiques pour la sécurité. Ne les remplacer que par une

pièce portant le numéro spécifié.

#### (Measuring conditions voltage and waveform)

- · Voltages and waveforms are measured between the measurement points and ground when camera shoots color bar chart of pattern box. They are reference values and reference wave-
- (VOM of DC 10 M $\Omega$  input impedance is used.).
- Voltage values change depending upon input impedance of VOM used.) \*

1. Connection



2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain

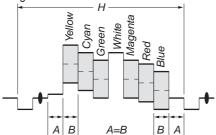


Fig. a (Video output terminal output waveform)

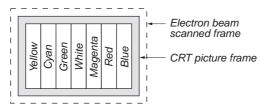


Fig.b (Picture on monitor TV)

When indicating parts by reference number, please include the board name.



Link				
CD-365 BOARD (CCD IMAGER)	FP-100, FP-2 (MODE SWITCH, DI	228, FP-102 FLEXIBLE BOARD EW SENSOR, TAPE TOP/END SENSOR, S/T REEL)		
LB-077 BOARD (EVF, EVF BACK LIGHT)				
MA-409 BOARD (MIC IN, HP JACK, REMOTE CONTROL RECEIVER, SWITCH)				
FB-219 BOARD (MANUAL FOCUS SENSOR)				
JK-217 BOARD (STEADY SHOT, A/D IN/OUT)				
JK-218 BOARD (DIGITAL IN/OUT)				
CK-108 BOARD (SWITCH, CONNECTOR)				
CONTROL SWITCH BLOCK (PS-CX2670)				
PD-161 BOARD (1/2) (RGB DRIVE, TIMING GENERATOR)				
PD-161 BOARD (2/2) (LCD DRIVE, BACK LIGHT)				
VA-117 BOARD (1/6) (RGB DRIVE, TG)				
• VA-117 BOARD (2/6) (AUDIO)				
VA-117 BOARD (3/6) (MIC AMP)				
VA-117 BOARD (4/6) (DC-DC CONVERTER)				
VA-117 BOARD (5/6) (CHARGE)				
✓ VA-117 BOARD (6/6) (VIDEO I/O)				
COMMON NOTE FOR SCHEMATIC DIAGRAMS		• WAVEFORMS		



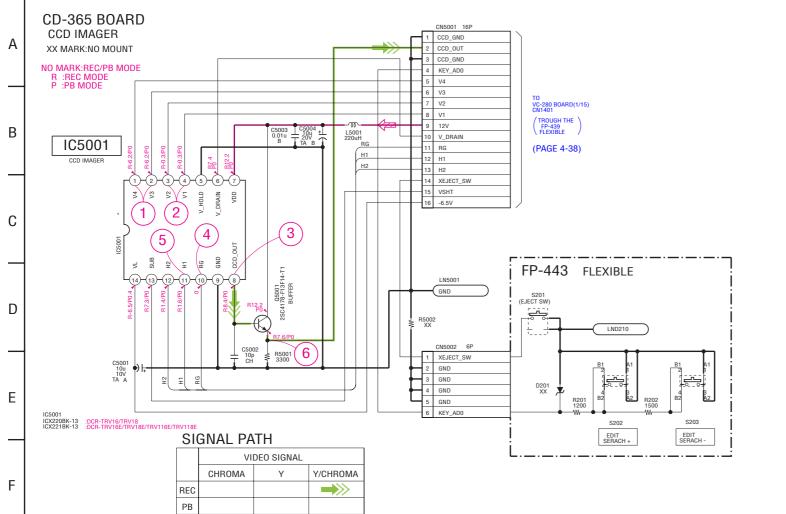
4-2. SCHEMATIC DIAGRAMS CD-365 BOARD LB-077 BOARD

#### 4-2. SCHEMATIC DIAGRAMS

#### For Schematic Diagram

- Refer to page 4-67 for printed wiring board.
- Refer to page 4-89 for waveforms.

3 | 4 | 5 | 6 | 7 | 8 | 9



4-9

#### Precautions Upon Replacing CCD imager

old one and mount it onto the new one.

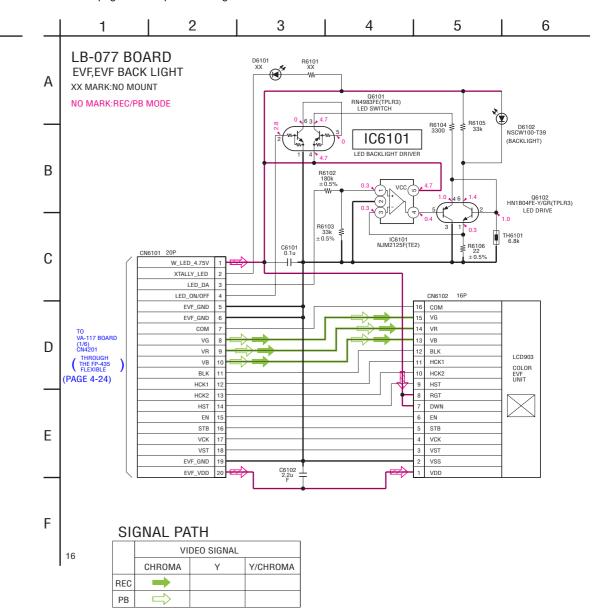
16

- The CD-365 board mounted as a repair part is not equipped with a CCD imager.

  When replacing this board, remove the CCD imager from the
- If the CCD imager has been replaced, carry out all the adjustments for the camera section.
- As the CCD imager may be damaged by static electricity from its structure, handle it carefully like for the MOS IC.
   In addition, ensure that the receiver is not covered with dusts nor exposed to strong light.

#### For Schematic Diagram

• Refer to page 4-75 for printed wiring board.



CD-365/LB-077

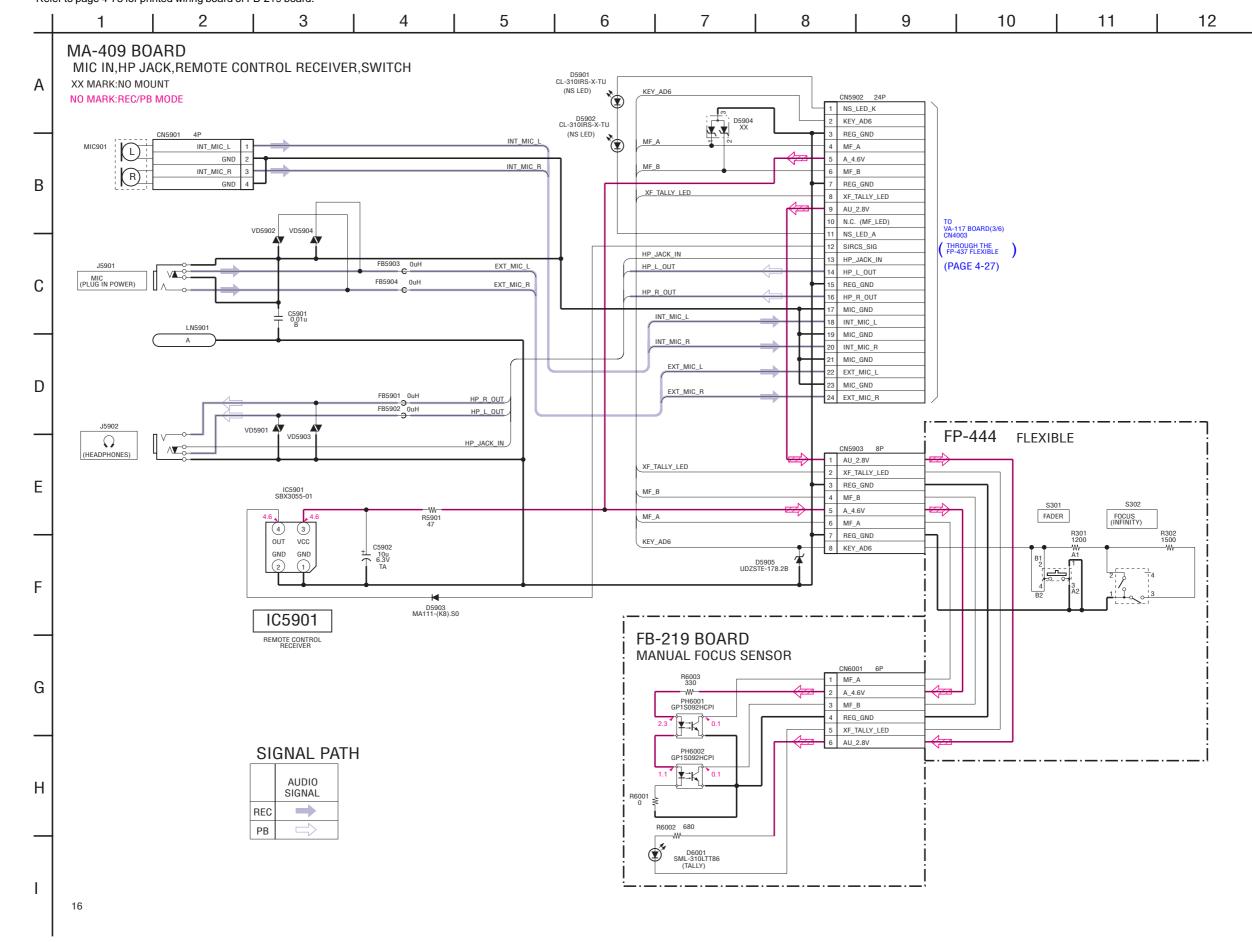


MA-409 BOARD

FB-219 BOARD

For Schematic Diagram

- Refer to page 4-71 for printed wiring board of MA-409 board.
- Refer to page 4-73 for printed wiring board of FB-219 board.



MA-409/FB-219

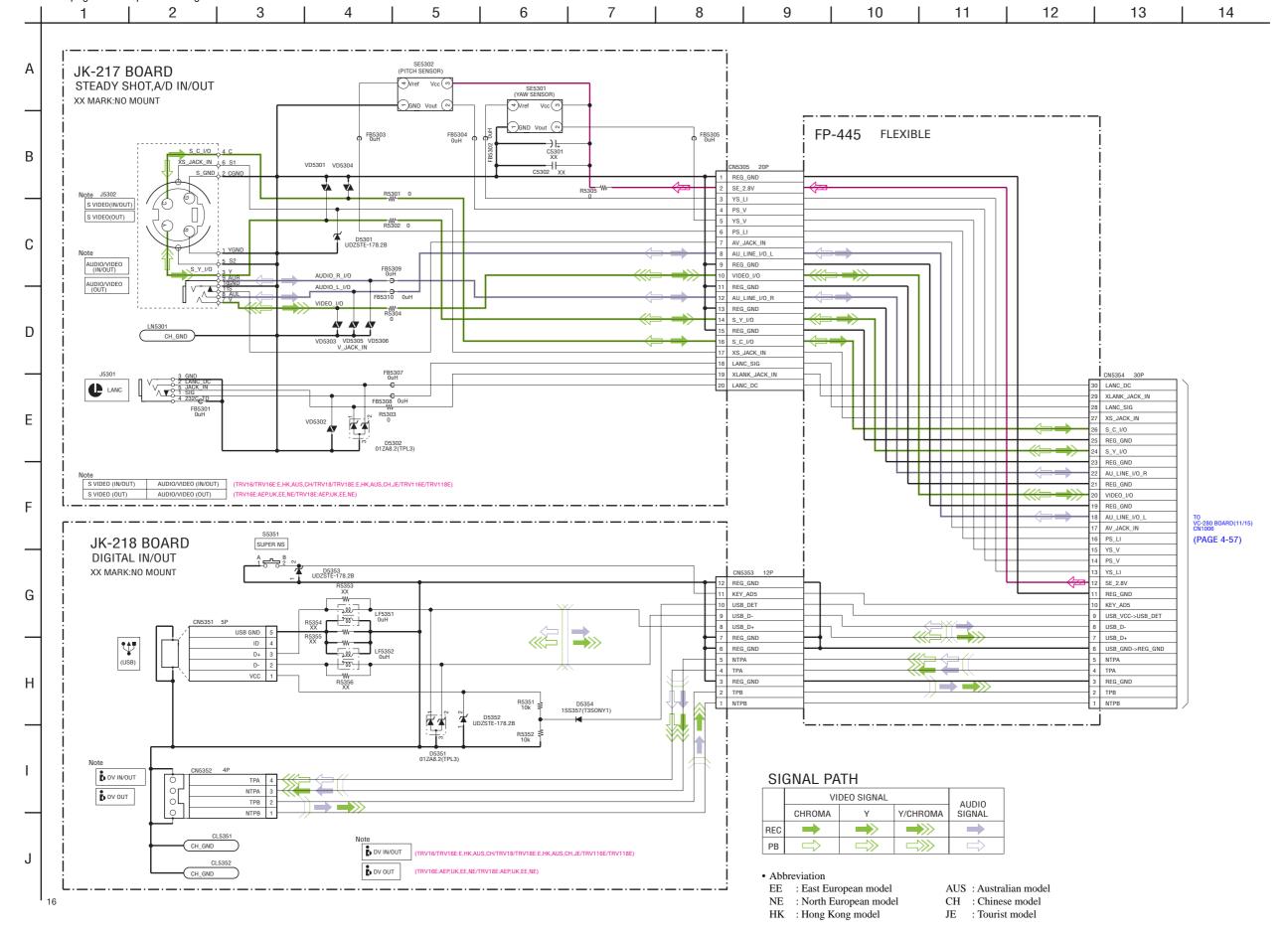
4-11



4-2. SCHEMATIC DIAGRAMS JK-217 BOARD JK-218 BOARD

#### For Schematic Diagram

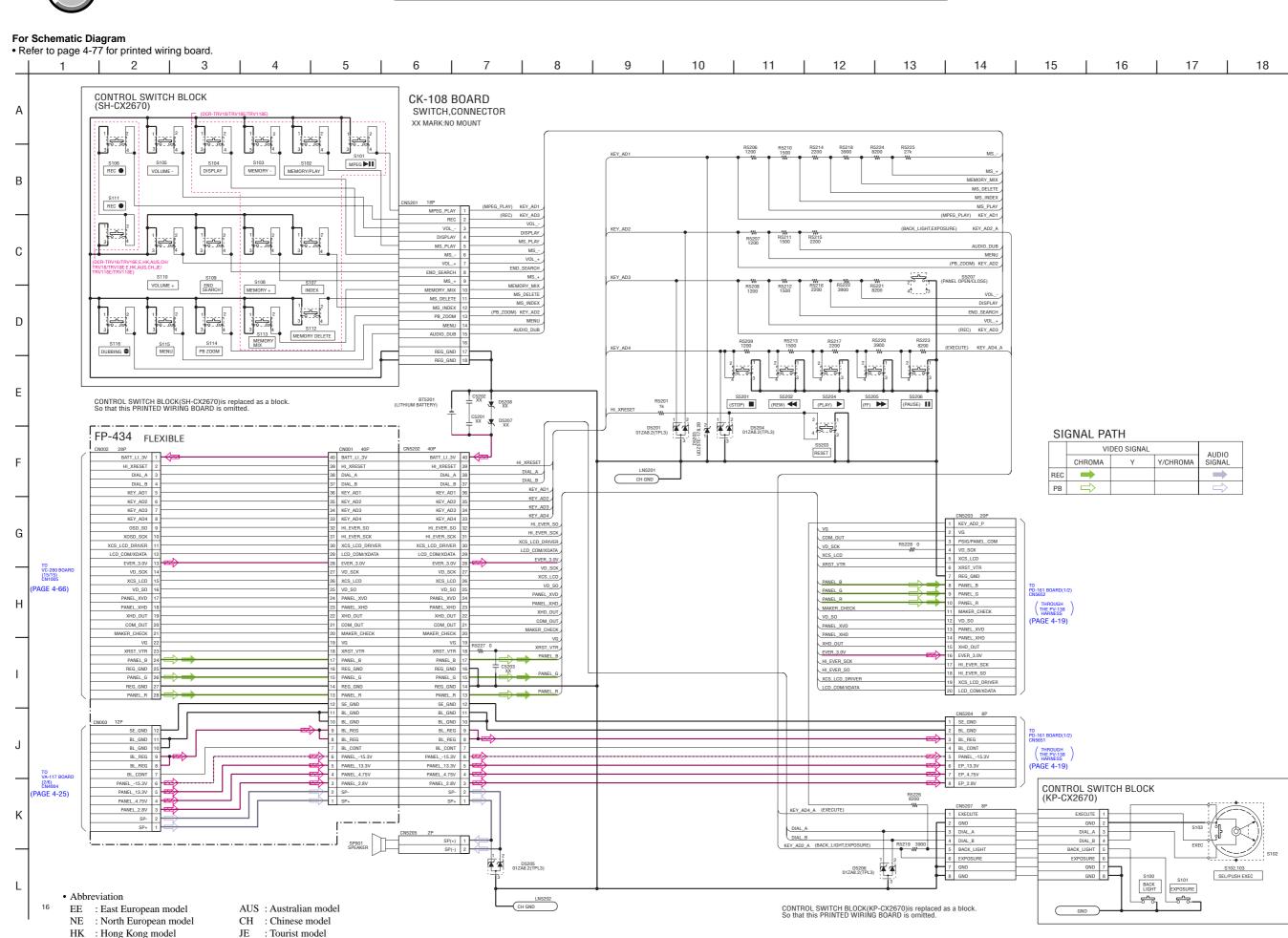
- Refer to page 4-69 for printed wiring board of JK-217 board.
- Refer to page 4-70 for printed wiring board of JK-218 board.





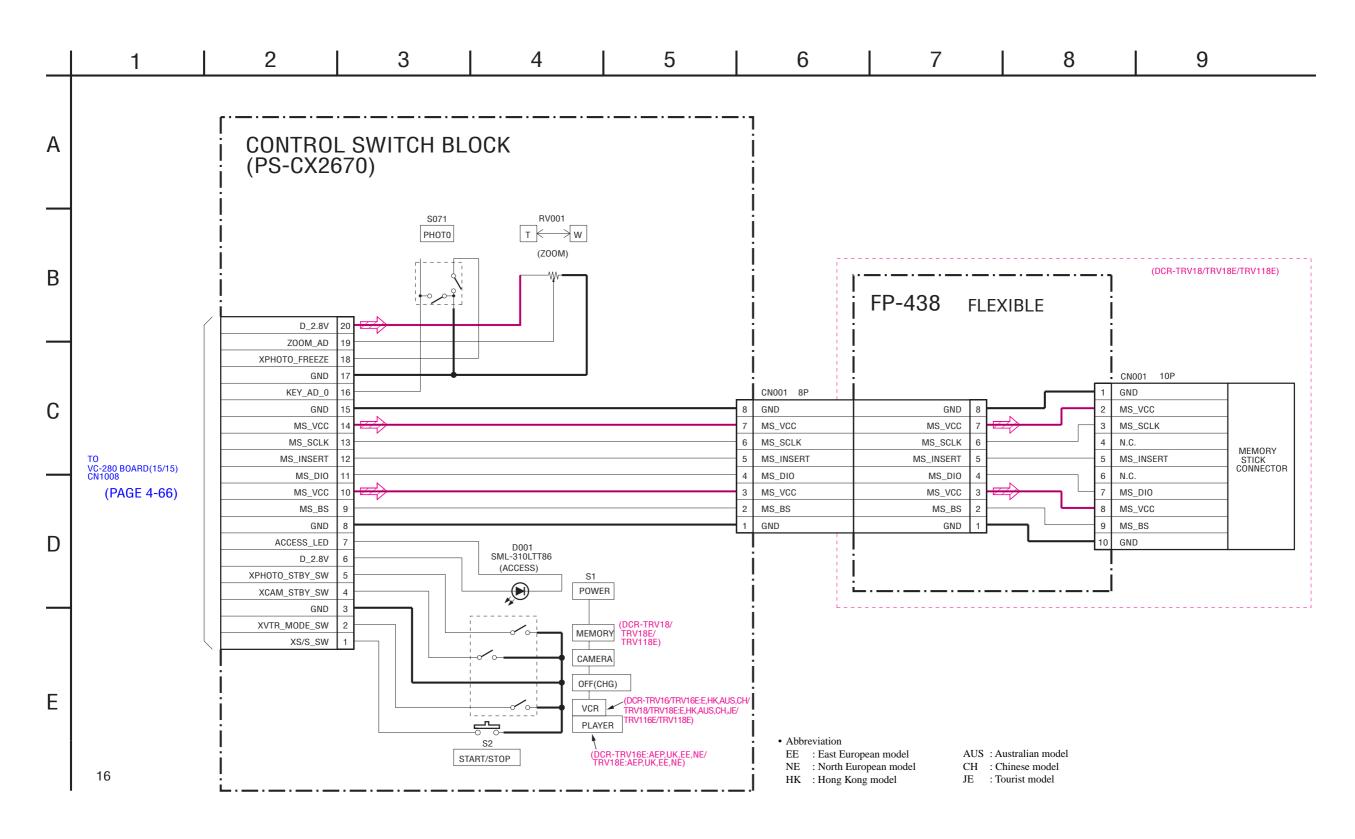
CK-108 BOARD SIDE A

CK-108 BOARD SIDE B





4-3. PRINTED WIRING BOARDS



CONTROL SWITCH BLOCK (PS-CX2670)

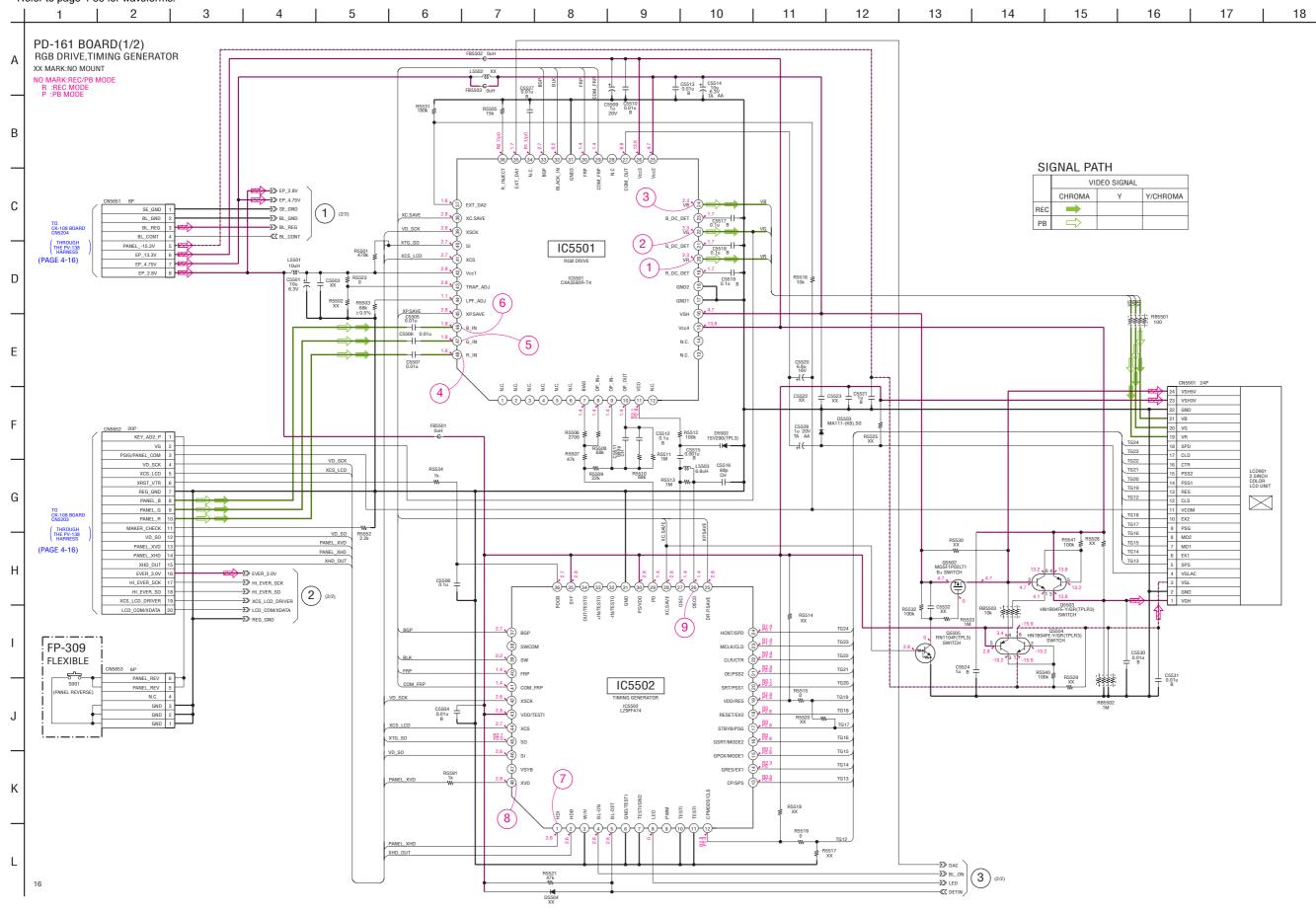


PD-161 PRINTED WIRING BOARD

For Schematic Diagram

• Refer to page 4-73 for printed wiring board.

• Refer to page 4-89 for waveforms. 9 10 11 12 13 | 14 15 16 | 17 |



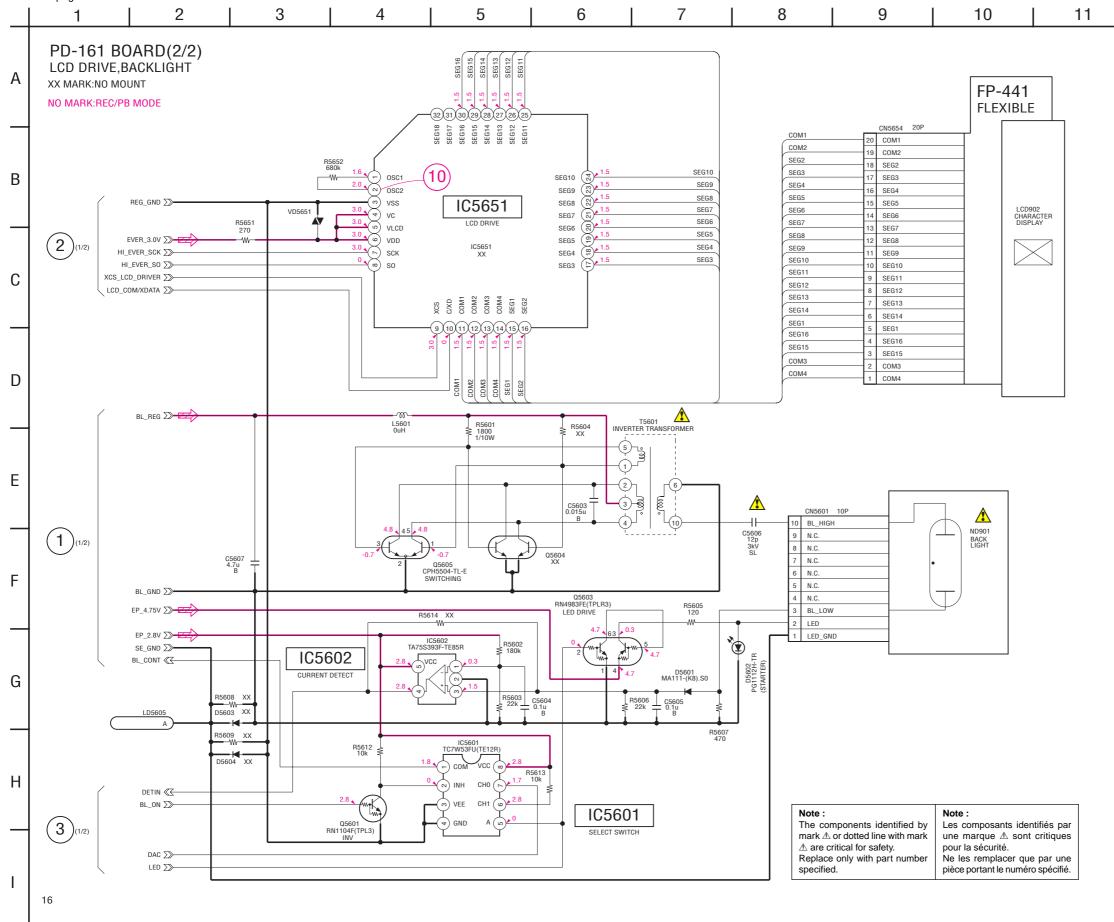
COVER

4-2. SCHEMATIC DIAGRAMS

PD-161 PRINTED WIRING BOARD

#### For Schematic Diagram

- Refer to page 4-73 for printed wiring board.
- Refer to page 4-89 for waveform.



COVER

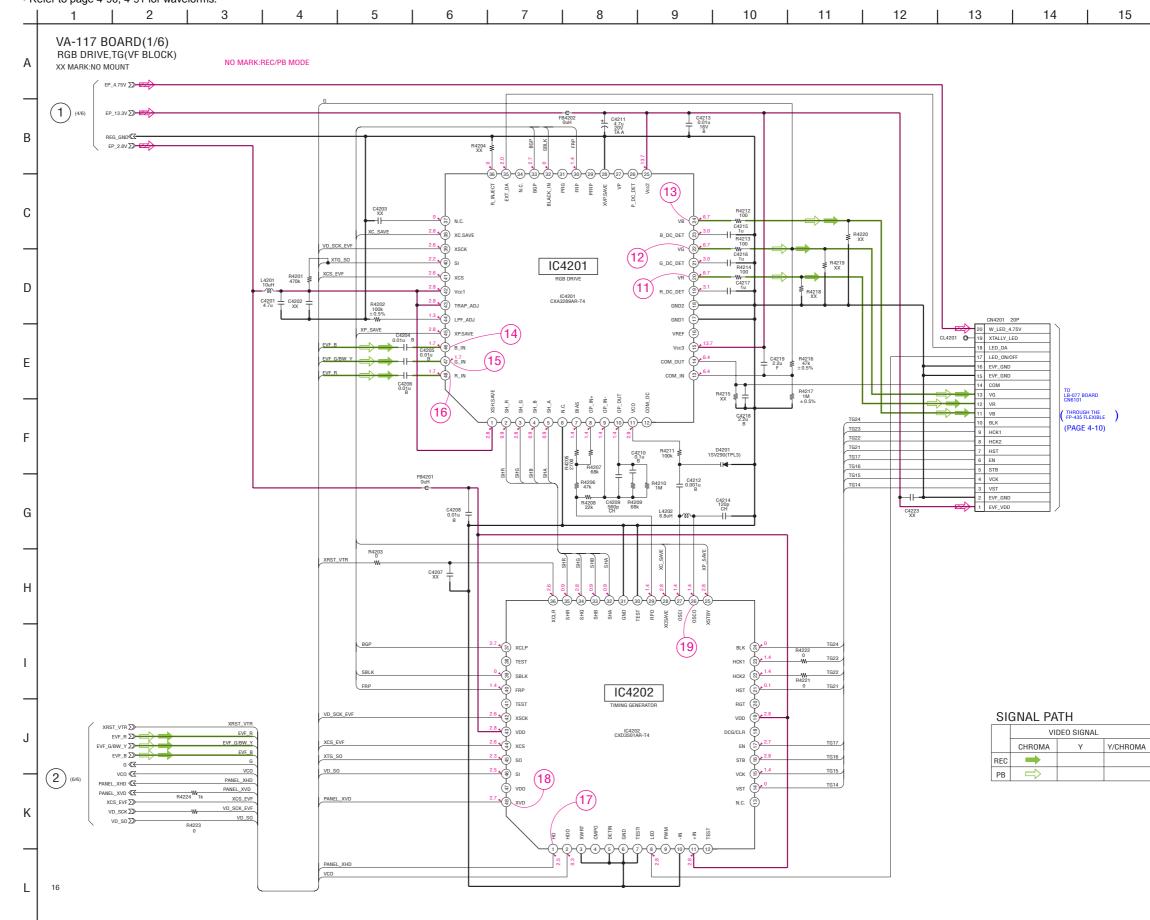
4-2. SCHEMATIC DIAGRAMS

VA-117 BOARD SIDE A

VA-117 BOARD SIDE B

For Schematic Diagram

- Refer to page 4-81 for printed wiring board.
- Refer to page 4-90, 4-91 for waveforms.



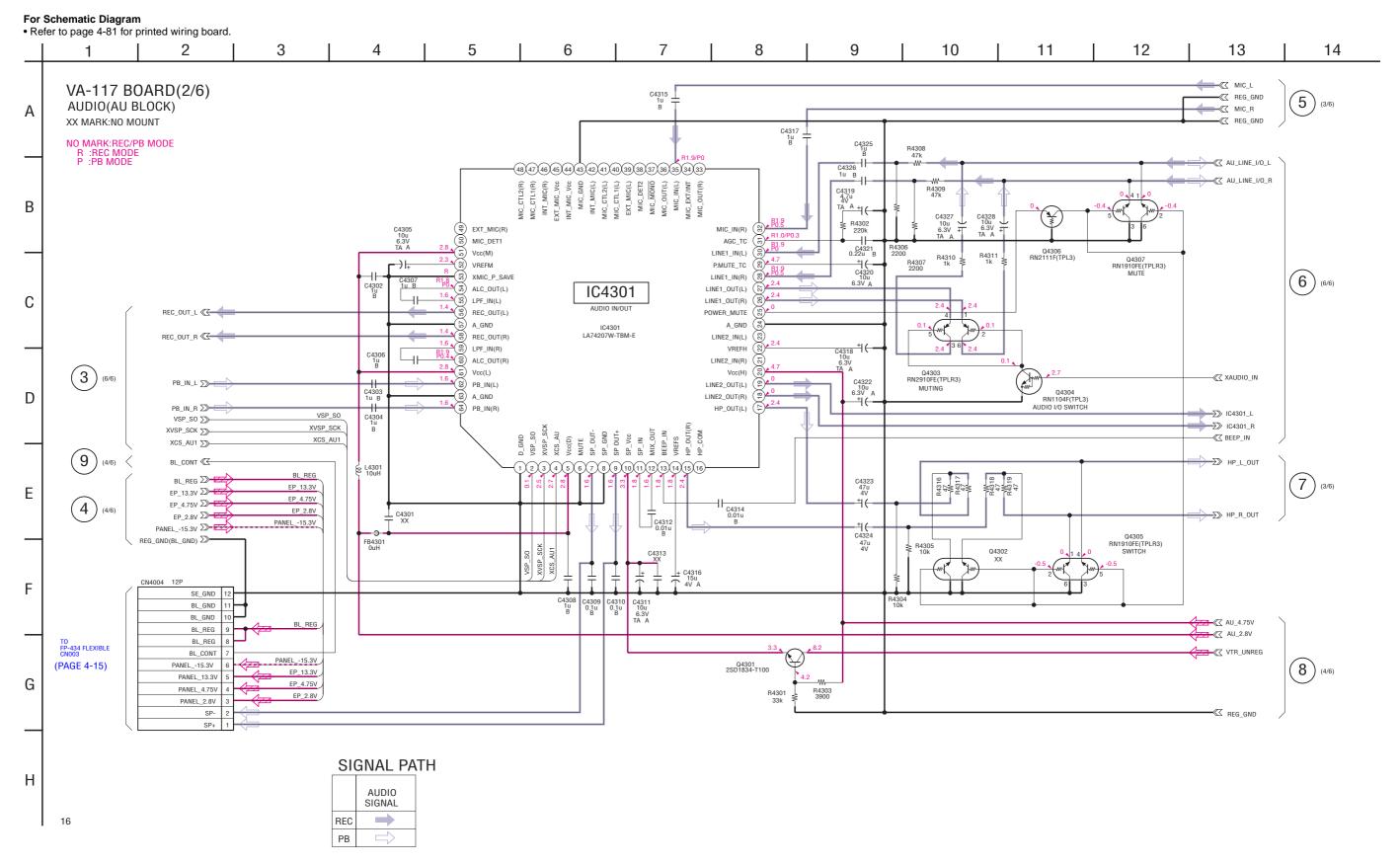
VA-117 (1/6)

4-23



4-2. SCHEMATIC DIAGRAMS **VA-117 BOARD SIDE A** VA-117 BOARD SIDE B

4-25

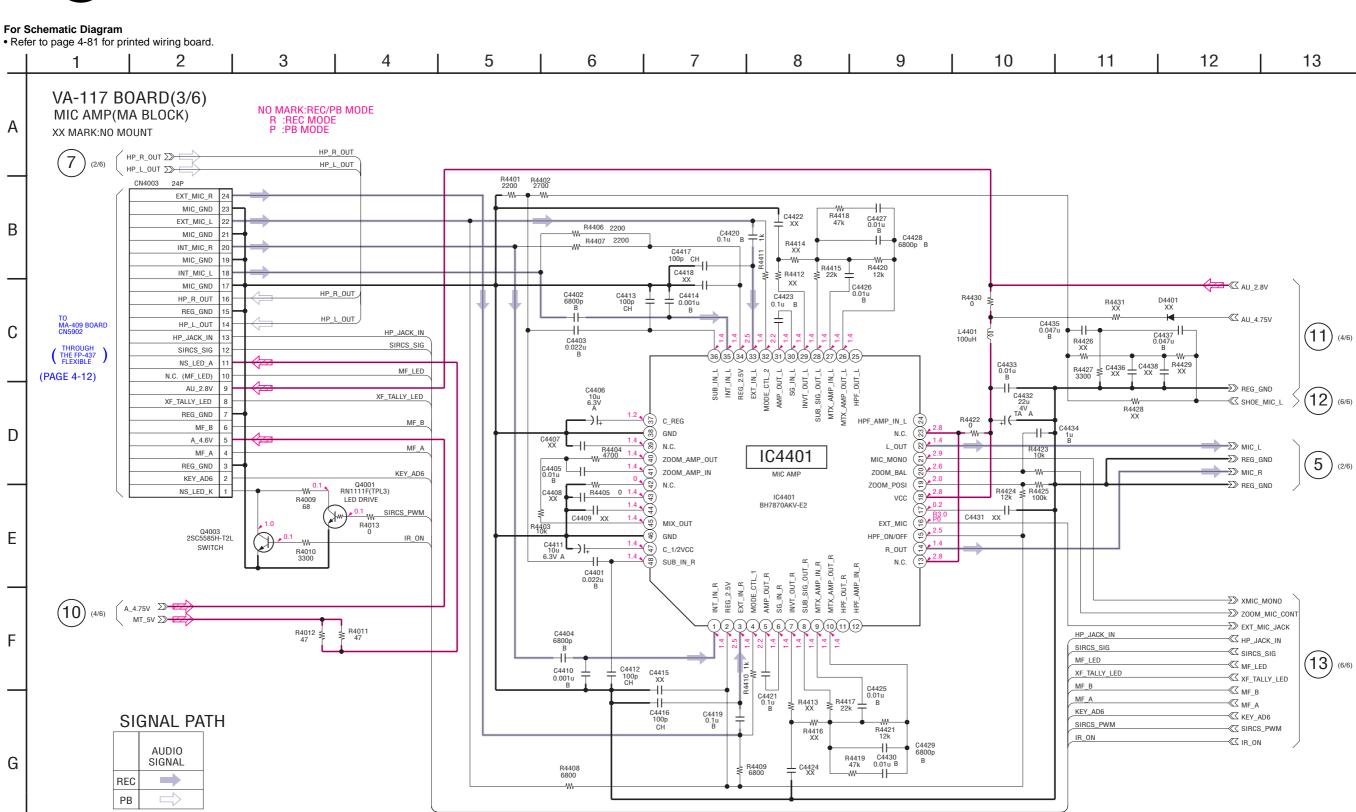


VA-117 (2/6) 4-26



VA-117 BOARD SIDE A

VA-117 BOARD SIDE B



VA-117 (3/6)

16

4-27

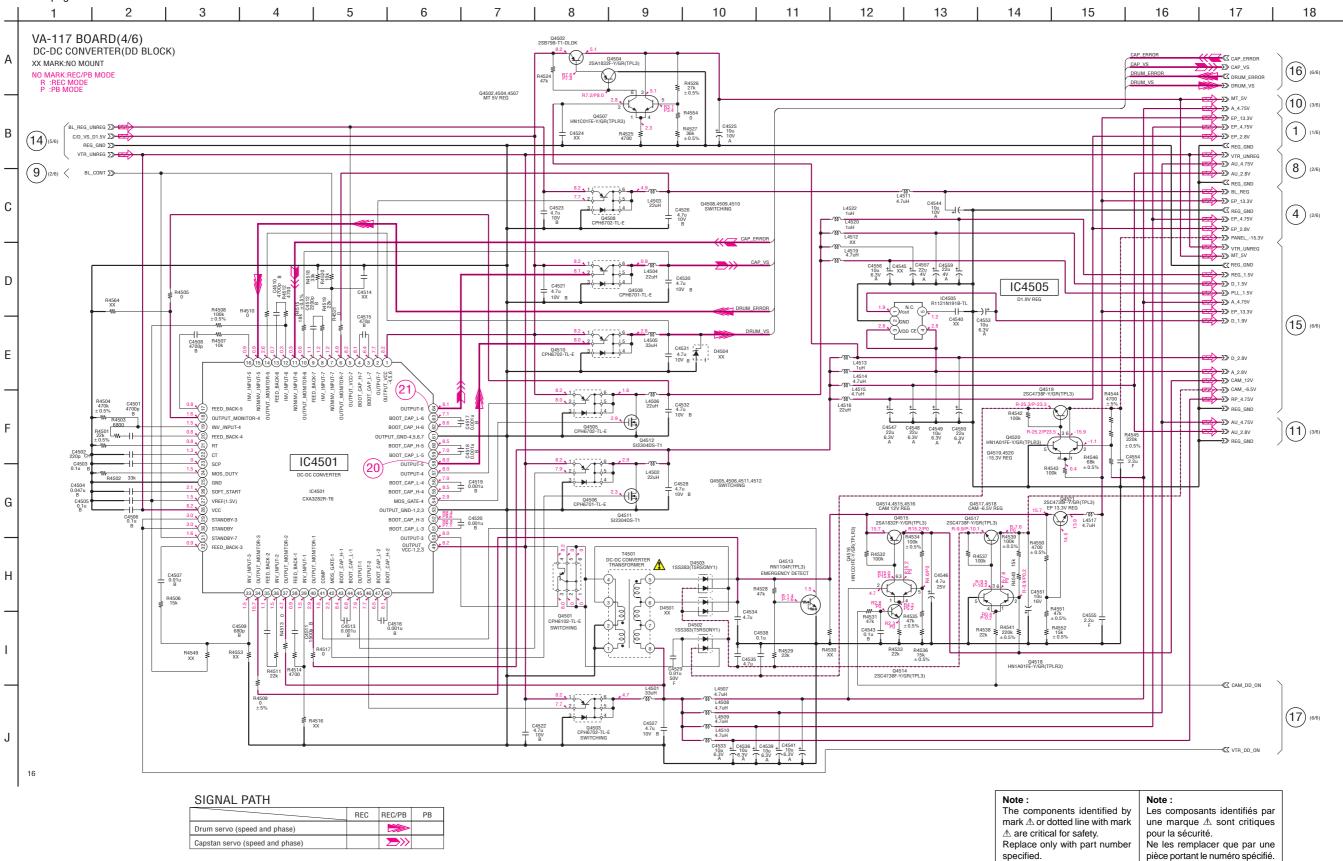


VA-117 BOARD SIDE A

VA-117 BOARD SIDE B

#### For Schematic Diagram

- Refer to page 4-81 for printed wiring board.
- Refer to page 4-91 for waveforms.





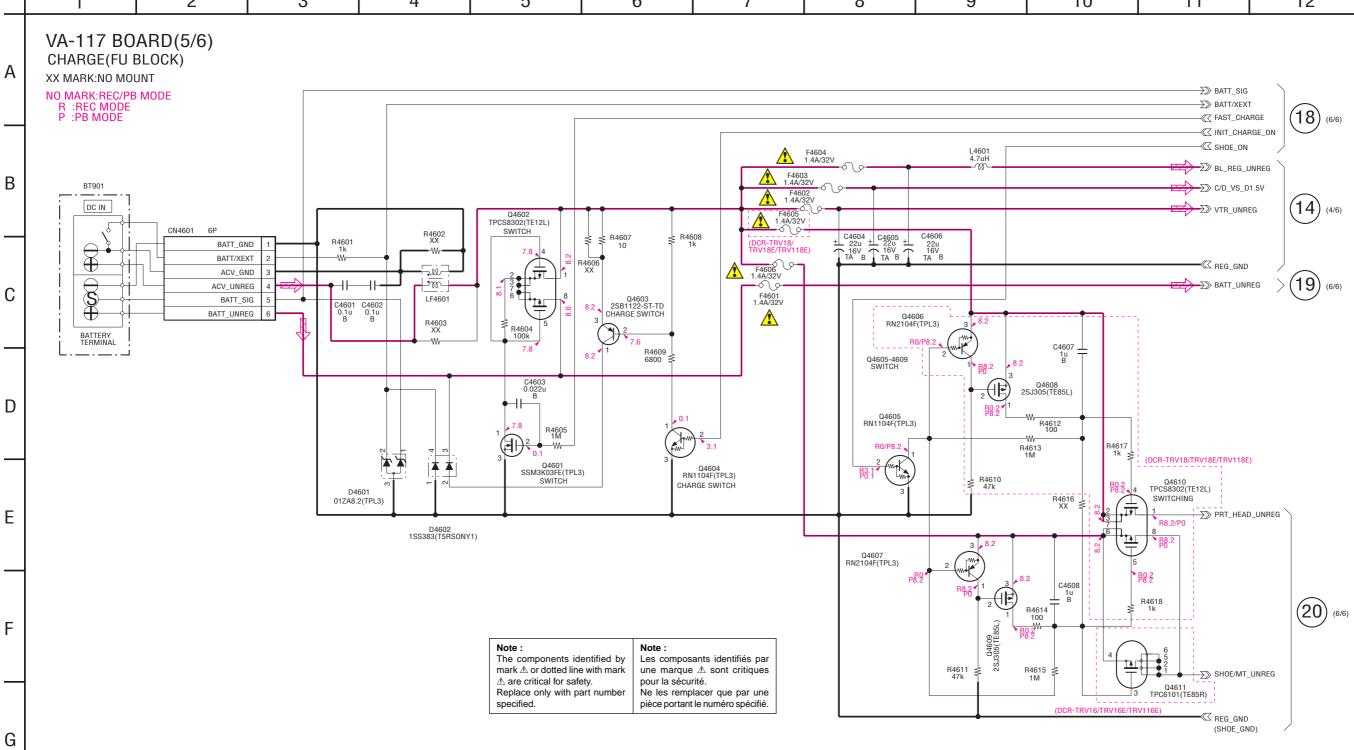
VA-117 BOARD SIDE A

VA-117 BOARD SIDE B



• Refer to page 4-81 for printed wiring board.

1 2 3 4 5 6 7 8 9 10 11 12



VA-117 (5/6)

16

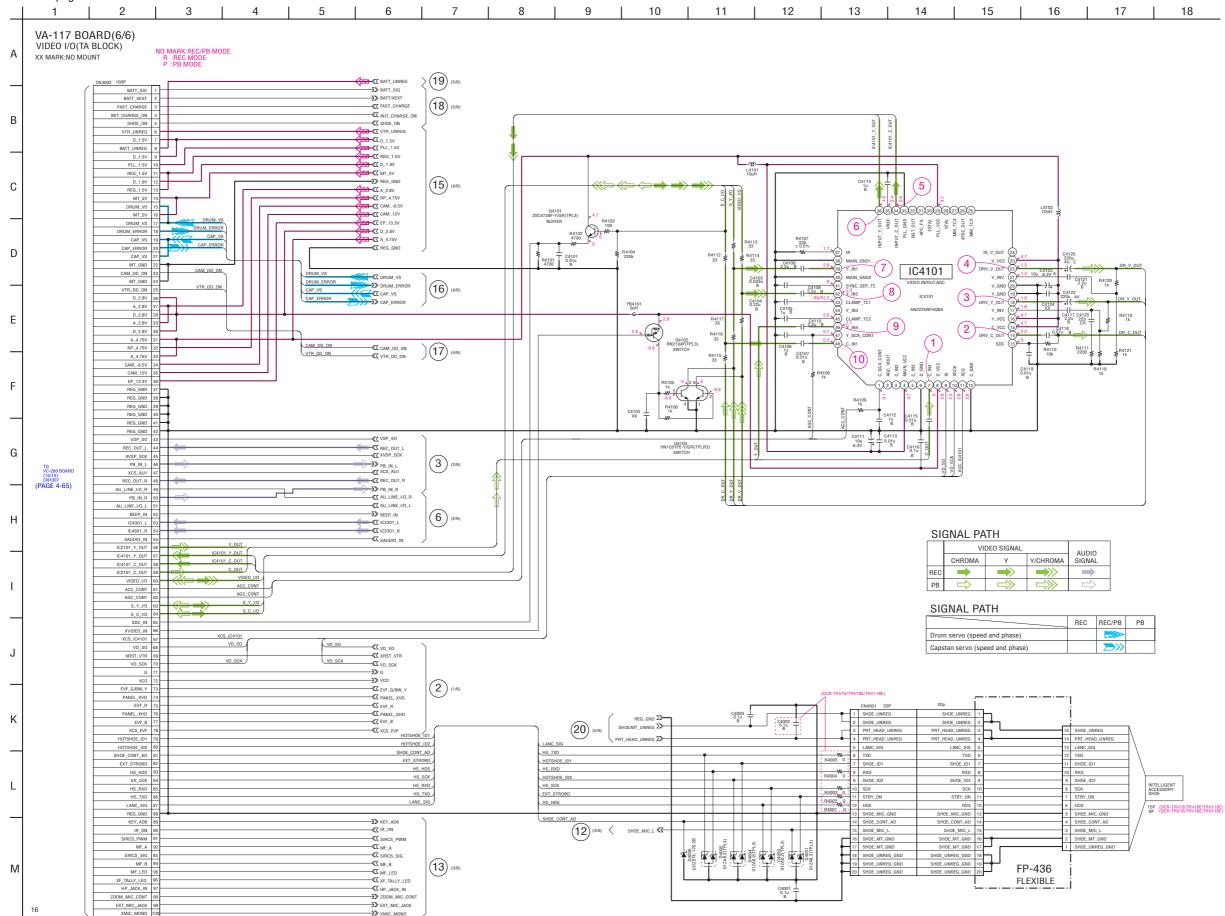


VA-117 BOARD SIDE A

VA-117 BOARD SIDE B

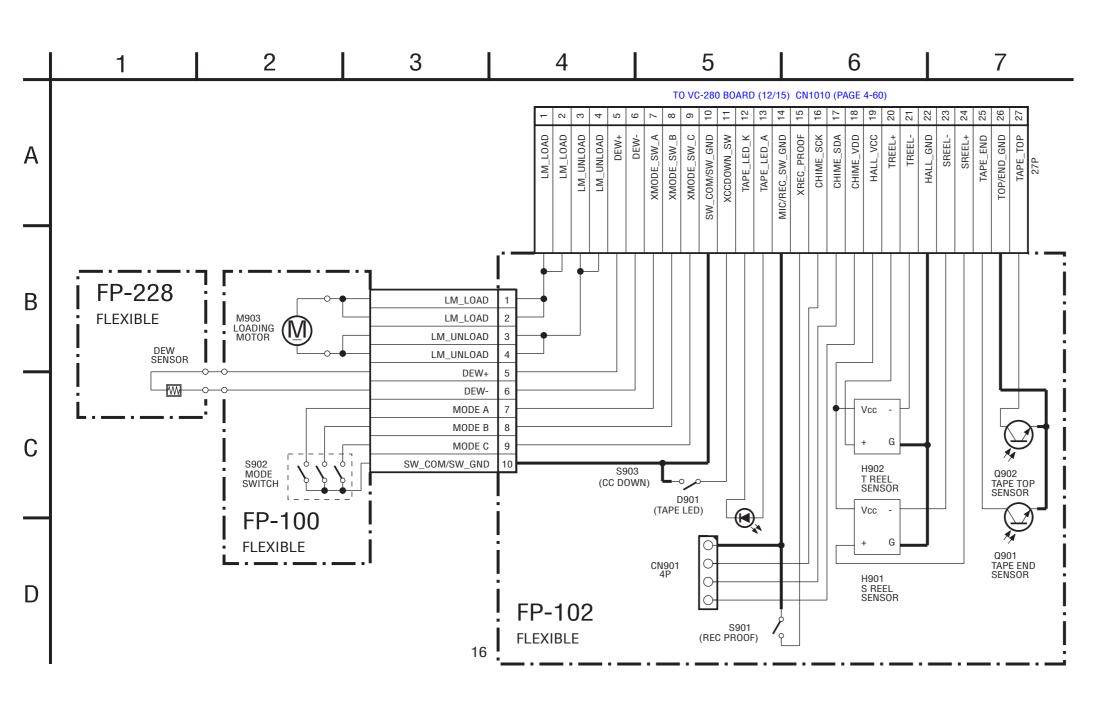
#### For Schematic Diagram

- Refer to page 4-81 for printed wiring board.
- Refer to page 4-90 for waveforms.





FP-100, FP-228, FP-102 FLEXIBLE BOARD



Schematic diagram of the VC-280 board are not shown. Pages from 4-37 to 4-66 are not shown.



## 4-3. PRINTED WIRING BOARDS

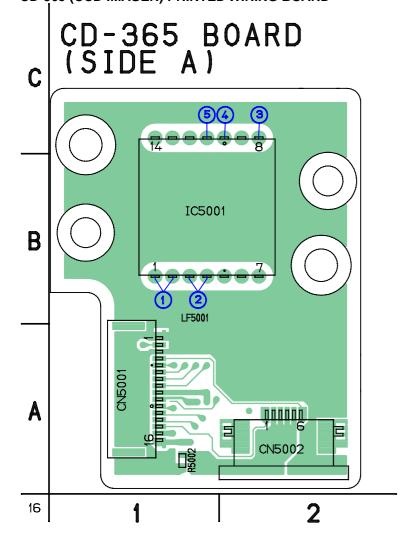
Link				
◆ CD-365 BOARD	FP-100, FP-228, FP-102 FLEXIBLE BOARDS			
• FP-443 FLEXIBLE BOARD	• LB-077 BOARD			
• JK-217 BOARD	CK-108 BOARD (SIDE A)			
• JK-218 BOARD	CK-108 BOARD (SIDE B)			
• MA-409 BOARD	▼ VA-117 BOARD (SIDE A)			
• FP-444 FLEXIBLE BOARD	▼ VA-117 BOARD (SIDE B)			
FB-219 BOARD				
• PD-161 BOARD				

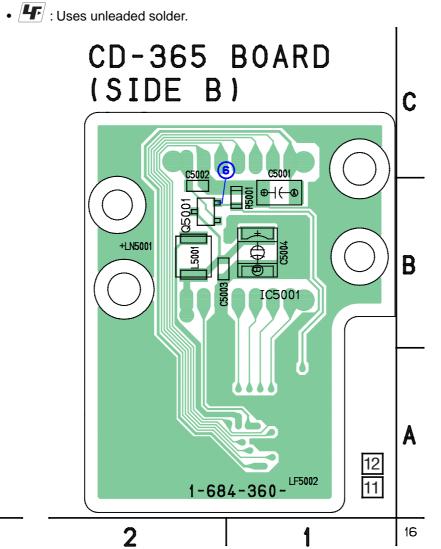
COMMON NOTE FOR PRINTED WIRING BOARDS		• WAVEFORMS
• MOUNTED PARTS LOCATION	• CIRCUIT BOARDS LOCATION	• FLEXIBLE BOARDS LOCATION





4-3. PRINTED WIRING BOARDS
CD-365 (CCD IMAGER) PRINTED WIRING BOARD



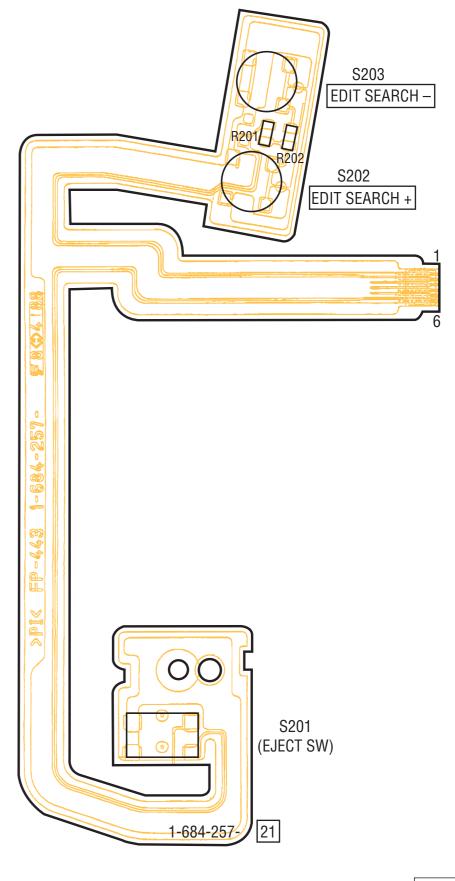


#### For printed wiring boards

- Refer to page 4-93 for parts location.
- This board is six-layer print board. However, the patterns of layers two to five have not been included in the diagram.

There are a few cases that the part printed on this diagram isn't mounted in this model.

## FP-443 FLEXIBLE

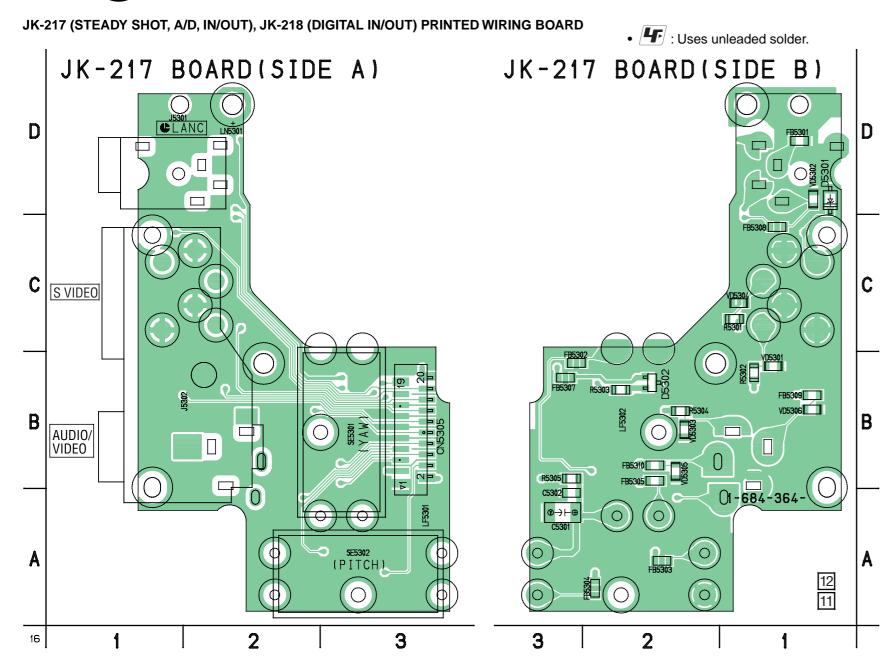


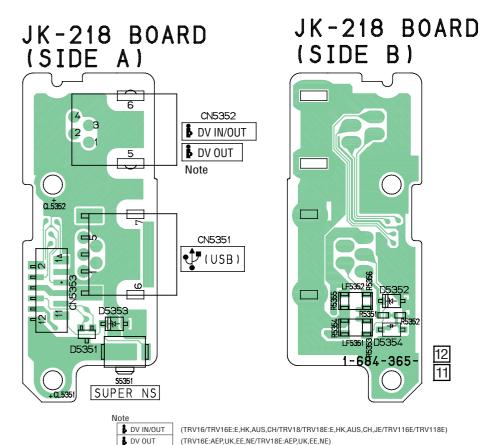
CD-365/FP-443



4-3. PRINTED WIRING BOARDS

MOUNTED PARTS LOCATION





#### For printed wiring boards

 This board is six-layer print board. However, the patterns of layers two to five have not been included in the diagram.

There are a few cases that the part printed on this diagram isn't mounted in this model.

4-70

Abbreviation

EE : East European model AUS : Australian model
NE : North European model CH : Chinese model
HK : Hong Kong model JE : Tourist model

#### For printed wiring boards

- Refer to page 4-93 for parts location.
- This board is six-layer print board. However, the patterns of layers two to five have not been included in the diagram.

There are a few cases that the part printed on this diagram isn't mounted in this model.

JK-217/JK-218 4-69



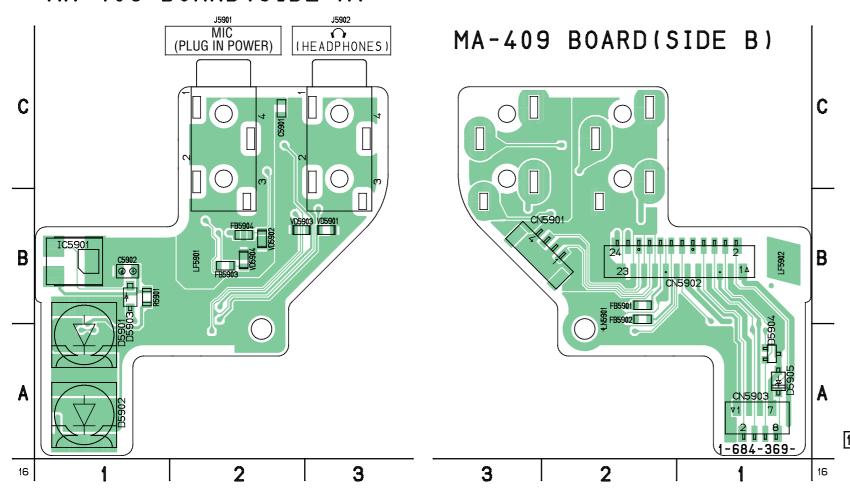




MA-409 (MIC IN, HP JACK, REMOTE CONTROL RECEIVER, SWITCH) PRINTED WIRING BOARD

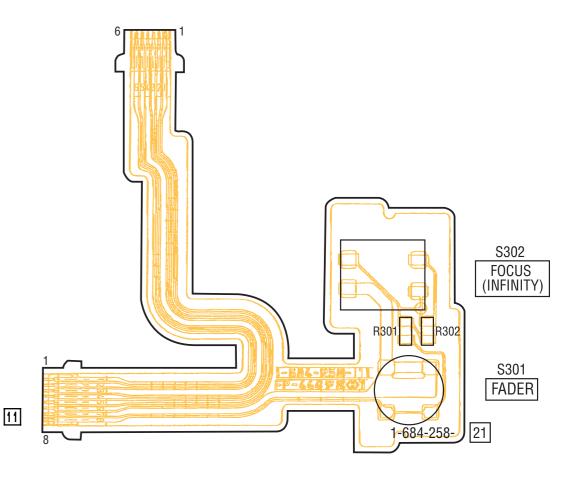
### MA-409 BOARD(SIDE A)

• **!** : Uses unleaded solder.



#### FP-444 FLEXIBLE BOARD

## FP-444 FLEXIBLE



#### For printed wiring boards

- Refer to page 4-93 for parts location.
- This board is six-layer print board. However, the patterns of layers two to five have not been included in the diagram.

There are a few cases that the part printed on this diagram isn't mounted in this model.

4-71 4-72 MA-409/FP-444



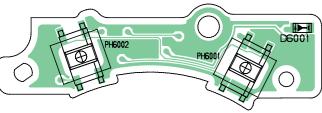
4-3. PRINTED WIRING BOARDS

MOUNTED PARTS LOCATION

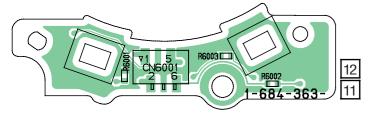
FB-219 (MANUAL FOCUS SENSOR), PD-161 (RGB DRIVE, TIMING GENERATOR, LCD DRIVE, BACK LIGHT) PRINTED WIRING BOARD

• **!** : Uses unleaded solder.

## FB-219 BOARD(SIDE A)



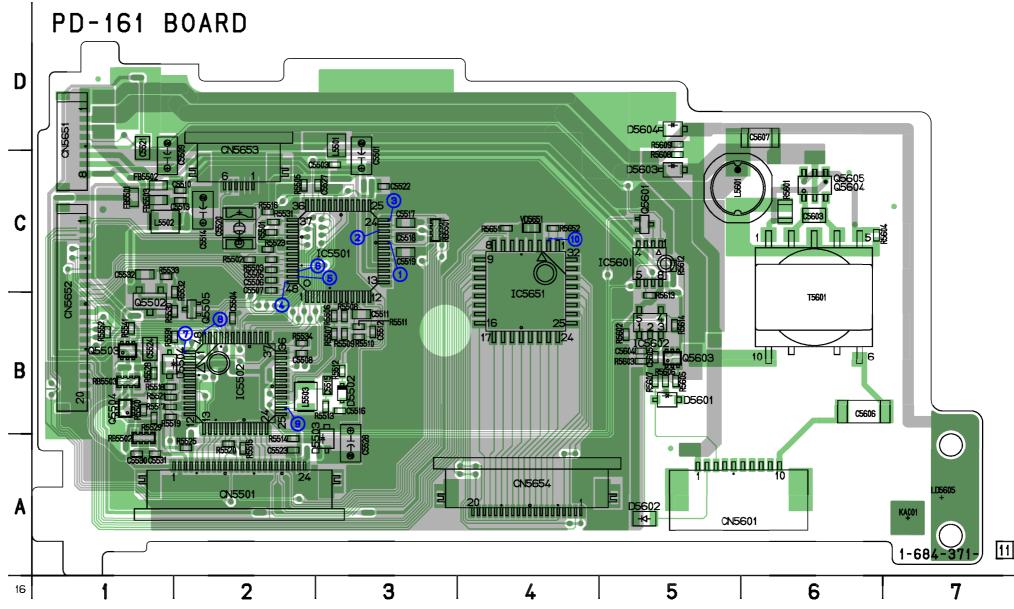
### FB-219 BOARD(SIDE B)



#### For printed wiring boards

 This board is six-layer print board. However, the patterns of layers two to five have not been included in the diagram.

There are a few cases that the part printed on this diagram isn't mounted in this model.



#### For printed wiring boards

- Refer to page 4-93 for parts location.
- This board is six-layer print board. However, the patterns of layers two to six have not been included in the diagram.

There are a few cases that the part printed on this diagram isn't mounted in this model.

FB-219/PD-161

4-73





FP-100 (MODE SWITCH), FP-228 (DEW SENSOR), FP-102 (TAPE TOP/END SENSOR, S/T REEL) FLEXIBLE BOARD LB-077 (EVF, EVF BACK LIGHT) PRINTED WIRING BOARD • **4** : Uses unleaded solder. (LB-077 board) Q902 TAPE TOP SENSOR FP-102 FLEXIBLE BOARD 1-677-085-D901 (TAPE LED) S903 (CC DOWN) S901 (REC PROOF) Q901 TAPE END T REEL SENSOR S REEL FP-100 FLEXIBLE BOARD M903 LOADING MOTOR LB-077 BOARD (SIDE B) LB-077 BOARD (SIDE A) CN6102 **SENSOR** 1-677-049-C6102 FP-228 For printed wiring boards FLEXIBLE BOARD • This board is six-layer print board. However, the patterns of layers two to five have not been included in CN6101 the diagram. S902 MODE SWITCH D6101 |----|1 -684-367-There are a few cases that the part printed on

this diagram isn't mounted in this model.

4-75

LB-077/FP-100/FP-228/FP-102 4-76

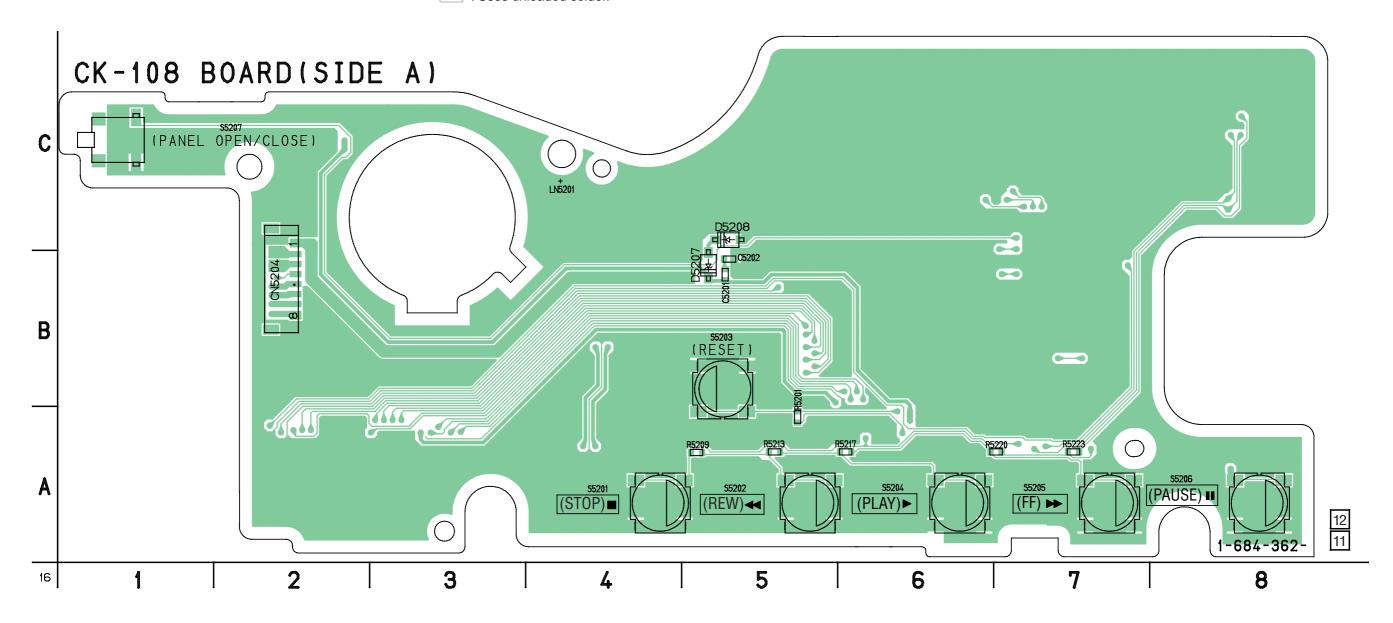


4-3. PRINTED WIRING BOARDS

MOUNTED PARTS LOCATION

CK-108 (SWITCH, CONNECTOR) PRINTED WIRING BOARD

• **4** : Uses unleaded solder.



#### For printed wiring boards

- Refer to page 4-94 for parts location.
- This board is six-layer print board. However, the patterns of layers two to five have not been included in the diagram.

There are a few cases that the part printed on this diagram isn't mounted in this model.

CK-108

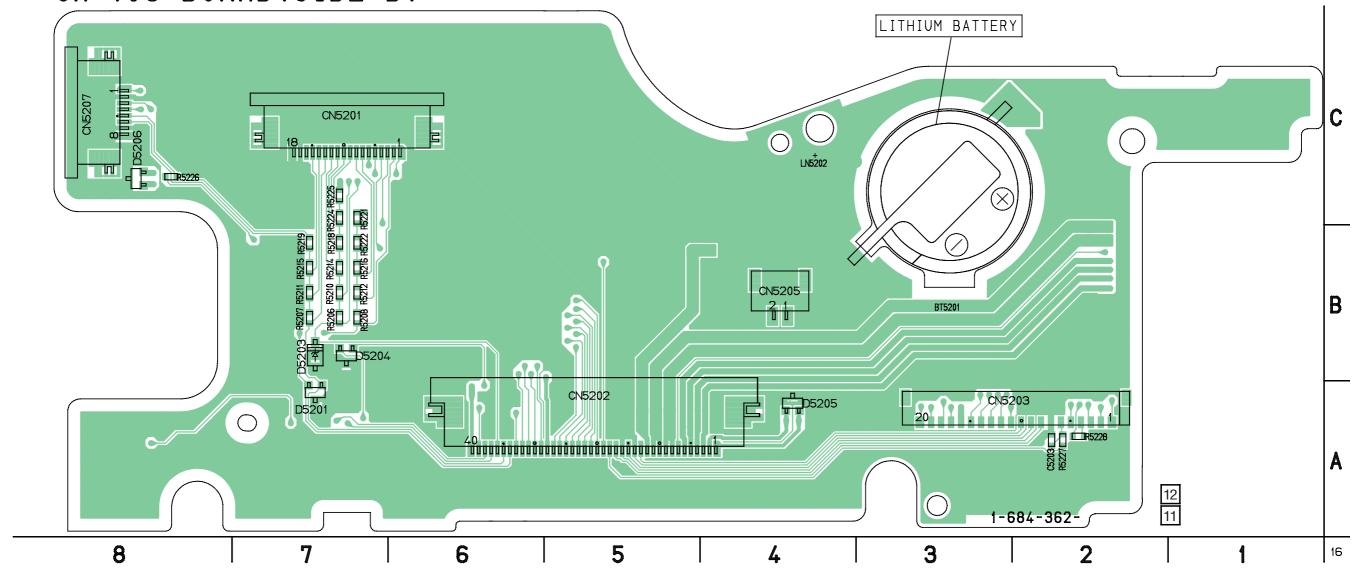


4-3. PRINTED WIRING BOARDS

MOUNTED PARTS LOCATION

# · Uses unleaded solder. CK-108 BOARD(SIDE B)

4-79



#### CAUTION:

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type.

CK-108 4-80

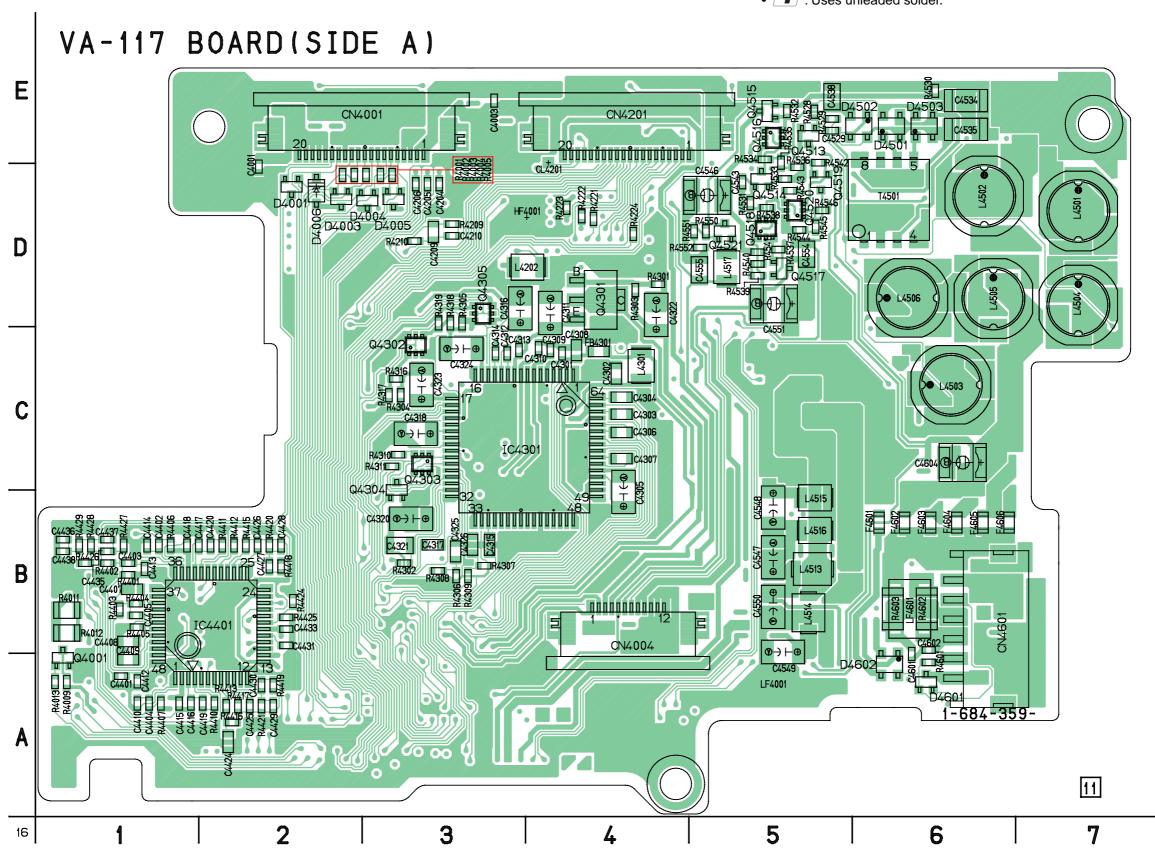


4-3. PRINTED WIRING BOARDS

MOUNTED PARTS LOCATION

VA-117 (RGB DRIVE, TG, AUDIO, MIC AMP, DC-DC CONVERTER, CHARGE, VIDEO I/O) PRINTED WIRING BOARD

• **F**: Uses unleaded solder.



#### For printed wiring boards

- Refer to page 4-94 for parts location.
- This board is six-layer print board. However, the patterns of layers two to five have not been included in the diagram.

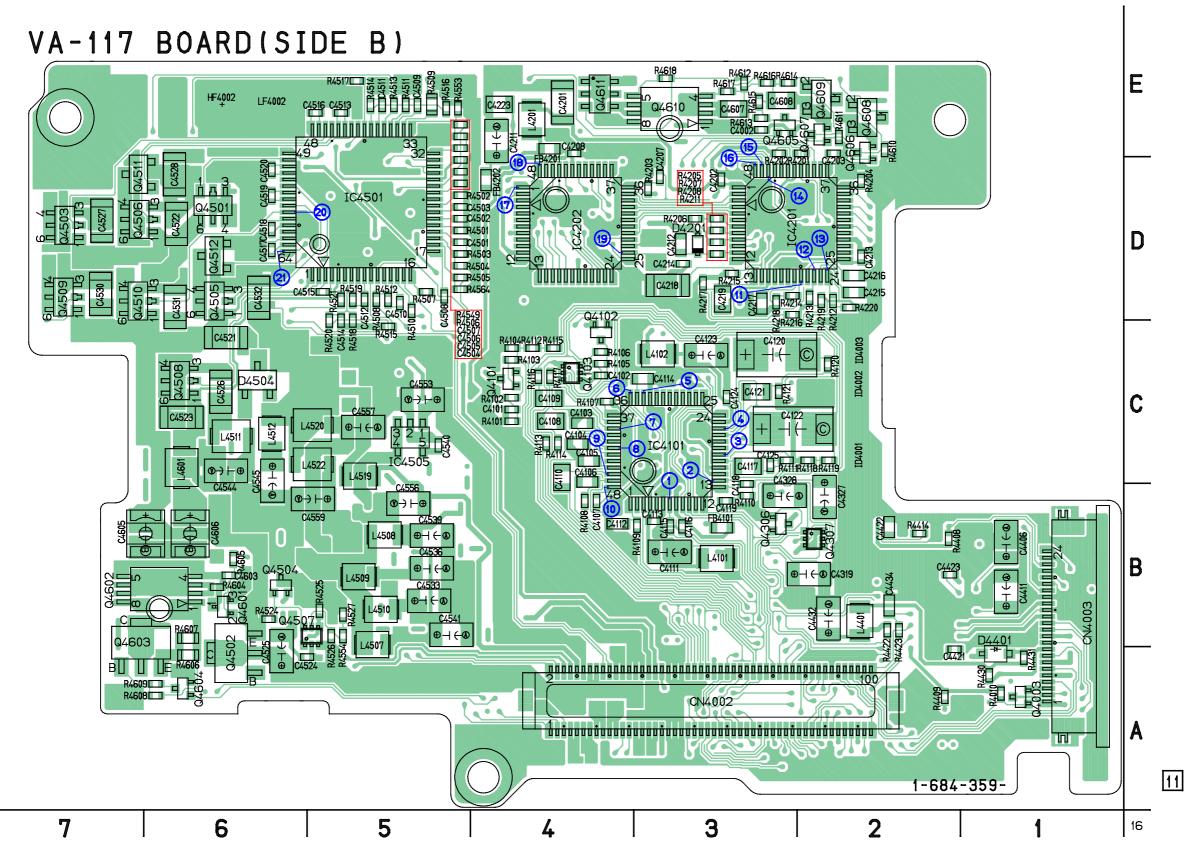
There are a few cases that the part printed on this diagram isn't mounted in this model.

**VA-117** 4-82

4-3. PRINTED WIRING BOARDS

MOUNTED PARTS LOCATION

• **!** : Uses unleaded solder.



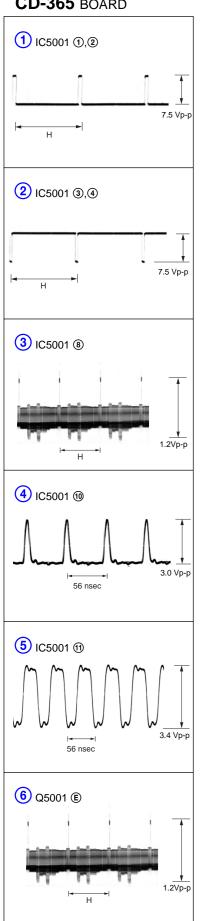
Printed wiring board of the VC-280 board are not shown. Pages from 4-85 to 4-88 are not shown.



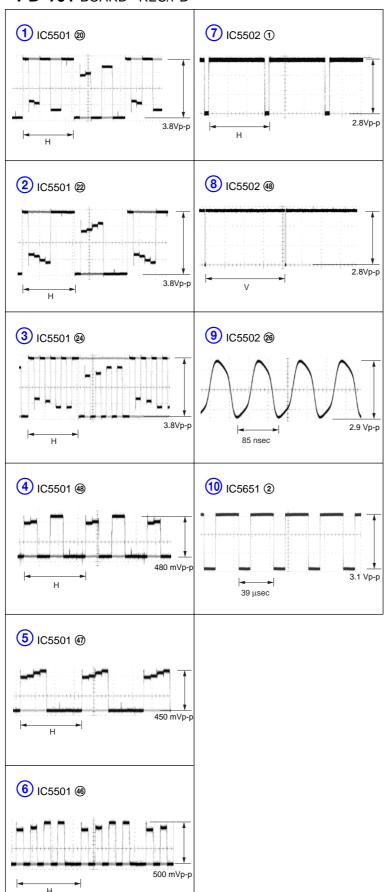
PD-161 BOARD VA-117 BOARD SIDE A VA-117 BOARD SIDE B CD-365 BOARD

#### 4-4. WAVEFORMS

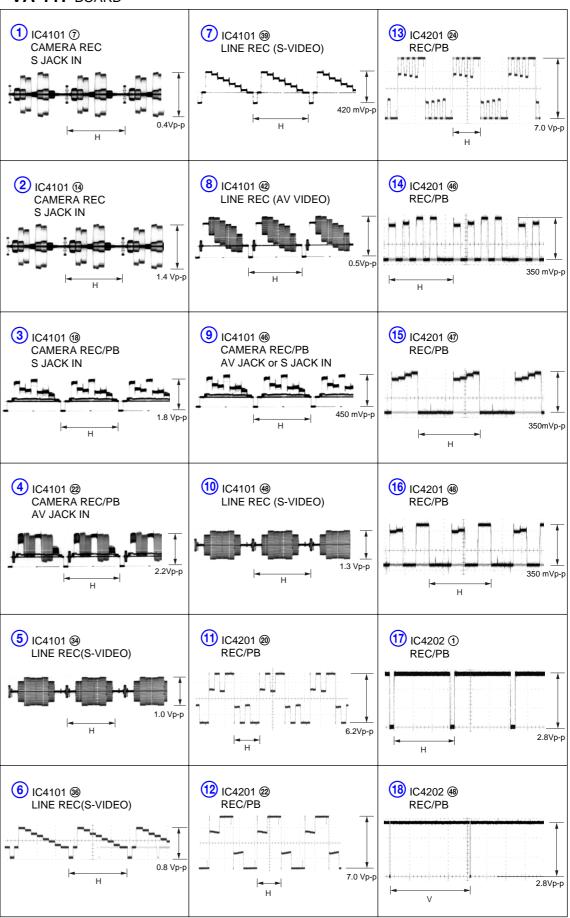
#### CD-365 BOARD



#### PD-161 BOARD REC/PB



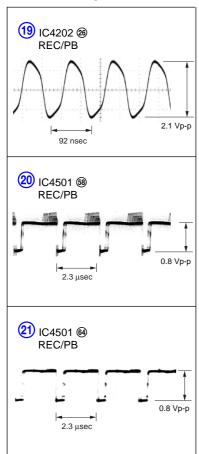
#### VA-117 BOARD





VA-117 SIDE A VA-117 SIDE B

#### VA-117 BOARD



Waveforms of the VC-280 board are not shown. Page 4-92 is not shown.



### 4-3. PRINTED WIRING BOARDS

no mark : side A \* mark : side B

### 4-5. MOUNTED PARTS LOCATION

<b>CD-365 BOARD</b> * C5001 B-1	JK-217 BOARD	MA-409 BOARD	DD 464 DOAF	
* C5001 B-1			PD-161 BOAF	RD
* C5002 B-2 * C5003 B-1	* C5301 A-3 * C5302 A-3 CN5305 B-3	C5901 C-2 C5902 B-1  * CN5901 B-2  * CN5902 B-1  * CN5903 A-1  D5901 A-1 D5902 A-1 D5903 B-1  * D5904 A-1  * D5905 A-1  * FB5901 B-2  * FB5902 B-2 FB5903 B-2 FB5903 B-2 IC5901 B-1	C5501 C-3 C5503 C-3 C5504 B-2 C5505 C-2	R5513 B-3 R5514 A-2 R5515 A-2 R5516 C-2
	* D5301 D-1 * D5302 B-2	* CN5902 B-1 * CN5903 A-1	C5506 C-2 C5507 C-2 C5508 B-2	R5517 B-1 R5518 B-1 R5519 B-1
IC5001 B-1 * IC5001 B-1	* FB5301 D-1 * FB5302 B-3	D5901 A-1 D5902 A-1 D5903 B-1	C5509 C-1 C5510 C-2 C5511 B-3	R5520 A-2 R5521 B-1 R5523 C-2
* L5001 B-2 * Q5001 B-2	* FB5303 A-2 * FB5304 A-2 * FB5305 B-2	* D5904 A-1 * D5905 A-1	C5512 B-3 C5513 C-2 C5514 C-2	R5525 A-2 R5528 B-1 R5529 B-1
* Q5001 B-2 * R5001 B-1	* FB5307 B-3 * FB5308 C-1 * FB5309 B-1	* FB5901 B-2 * FB5902 B-2 FB5903 B-2	C5515 B-3 C5516 B-3 C5517 C-3	R5530 B-1 R5531 C-2 R5532 B-2
	* FB5310 B-2	FB5904 B-2	C5517 C-3 C5518 C-3 C5519 C-3	R5533 C-1 R5534 B-2
	J5301 D-1 J5302 B-2	IC5901 B-1 J5901 C-2	C5520 C-2 C5521 D-1 C5522 C-3	R5540 B-1 R5541 B-1 R5552 B-1
	* R5301	J5902 C-3 R5901 B-1	C5523 A-2 C5524 B-1 C5527 C-3	R5591 B-1 R5601 C-6 R5602 B-5
	* R5304 B-2 * R5305 B-3	VD5901 B-3	C5528 A-3 C5530 A-1 C5531 A-1	R5603 B-5 R5604 C-6 R5605 B-5
	SE5301 B-3 SE5302 A-3	J5901 C-2 J5902 C-3 R5901 B-1 VD5901 B-3 VD5902 B-2 VD5903 B-2 VD5904 B-2	C5532 C-1 C5603 C-6 C5604 B-5	R5606 B-5 R5607 B-5 R5608 C-5
	* VD5301 B-1 * VD5302 D-1 * VD5303 B-2 * VD5304 C-1		C5605 B-5 C5606 B-6 C5607 D-6	R5609 D-5 R5612 C-5 R5613 B-5 R5614 B-5
	* VD5305 B-2 * VD5306 B-1		CN5501 A-2 CN5601 A-5 CN5651 D-1	R5651 C-4 R5652 C-4
			CN5652 B-1 CN5653 C-2 CN5654 A-4	RB5501 C-3 RB5502 A-1 RB5503 B-1
			D5502 B-3 D5503 A-3 D5504 B-1	T5601 B-6 VD5651 C-4
			D5601 B-5 D5602 A-5 D5603 C-5 D5604 D-5	
			FB5501 C-1 FB5502 C-1	
			FB5503 C-1 IC5501 C-3	
			IC5502 B-2 IC5601 C-5 IC5602 B-5 IC5651 C-4	
			L5501 D-3 L5502 C-1	
			L5503 B-2 L5601 C-5	
			Q5502 B-1 Q5503 B-1 Q5504 B-1 Q5505 B-2	
			Q5601 C-5 Q5603 B-5 Q5604 C-6	
			Q5605 C-6 R5501 C-2	
			R5502 C-2 R5503 C-2 R5505 C-2	
			R5506 B-3 R5507 B-3 R5508 B-3	
			R5509 B-3 R5510 B-3 R5511 B-3 R5512 B-3	



### 4-3. PRINTED WIRING BOARDS

no mark : side A \* mark : side B

CK-108 BOARD	VA-117 BO	ARD				*
* BT5201 C-3	C4001 D-2	C4403 B-1	* C4545 C-6	* L4510 B-5	* R4109 B-3	R4427 B-1
C5201 B-5	* C4002 E-3 C4003 E-3	C4404 A-1 C4405 B-1	C4546 D-5 C4547 B-5	* L4511 C-6 * L4512 C-6	* R4110 B-3 * R4111 C-3	R4428 B-1 R4429 B-1
C5202 B-5	* C4101 C-4	* C4406 B-1	C4548 B-5	L4513 B-5	* R4112 C-4	* R4430 A-1
* C5203 A-2	* C4102 C-4 * C4103 C-4	C4407 B-1 C4408 B-1	C4549 A-5 C4550 B-5	L4514 B-5 L4515 B-5	* R4113 C-4 * R4114 C-4	* R4431 A-1 * R4501 D-5
* CN5201 C-7	* C4104 C-4	C4409 B-1	C4551 D-5	L4516 B-5	* R4115 C-4	* R4502 D-5
* CN5202 A-5 * CN5203 A-2	* C4105 C-4 * C4106 C-4	C4410 A-1 * C4411 B-1	* C4553 C-5 C4554 D-5	L4517 D-5 * L4519 C-5	* R4116 C-4 * R4117 C-4	* R4503 D-5 * R4504 D-5
CN5204 B-2	* C4107 B-4	C4412 A-1	C4555 D-5	* L4520 C-5	* R4118 C-2	* R4505 D-5
* CN5205 B-4 * CN5207 C-8	* C4108 C-4 * C4109 C-4	C4413 B-1 C4414 B-1	* C4556 B-5 * C4557 C-5	* L4522 C-5 * L4601 C-6	* R4119 C-2 * R4120 C-2	* R4506 E-5 * R4507 D-5
0103207 0 0	* C4110 C-4	C4415 A-1	* C4559 B-5	L4001 0 0	* R4121 C-3	* R4508 D-5
* D5201 A-7 * D5203 B-7	* C4111 B-3 * C4112 B-4	C4416 A-1 C4417 B-2	C4601 A-6 C4602 B-6	LF4601 B-6	* R4201 E-2 * R4202 E-3	* R4509 E-5 * R4510 D-5
* D5203 B-7 * D5204 B-7	* C4112 B-4 * C4113 B-3	C4417 B-2	* C4603 B-6	Q4001 A-1	* R4203 D-3	* R4510 D-5
* D5205 A-4	* C4114 C-3	C4419 A-2	C4604 C-6	* Q4003 A-1	* R4204 D-2	* R4512 D-5
* D5206 C-8 D5207 B-5	* C4115 B-3 * C4116 B-3	C4420 B-2 * C4421 A-2	* C4605 B-6 * C4606 B-6	* Q4101 C-4 * Q4102 C-4	* R4205 D-3 * R4206 D-3	* R4513 E-5 * R4514 E-5
D5208 C-5	* C4117 C-3	* C4422 B-2	* C4607 E-3	* Q4103 C-4	* R4207 D-3	* R4515 C-5
R5201 A-5	* C4118 B-3 * C4119 B-3	* C4423 B-2 C4424 A-2	* C4608 E-3	Q4301 D-4 Q4302 C-3	* R4208 D-3 R4209 D-3	* R4516 E-5 * R4517 E-5
* R5206 B-7	* C4120 C-3	C4425 A-2	CN4001 E-3	Q4303 C-3	R4210 D-3	* R4518 D-5
* R5207 B-7 * R5208 B-7	* C4121 C-3 * C4122 C-3	C4426 B-2 C4427 B-2	* CN4002 A-3 * CN4003 B-1	Q4304 C-3 Q4305 D-3	* R4211 D-3 * R4212 D-2	* R4519 D-5 * R4520 D-5
R5209 A-5	* C4123 C-3	C4428 B-2	CN4004 B-4	* Q4306 B-3	* R4213 D-2	* R4521 D-5
* R5210 B-7 * R5211 B-7	* C4124 C-3 * C4125 C-3	C4429 A-2 C4430 A-2	CN4201 E-4 CN4601 B-6	* Q4307 B-2 * Q4501 D-6	* R4214 D-3 * R4215 D-3	* R4524 B-6 * R4525 B-5
* R5212 B-7	* C4201 E-4	C4431 B-2	GN4001 B-0	* Q4502 A-6	* R4216 D-3	* R4526 B-5
R5213 A-5 * R5214 B-7	* C4202 D-3 * C4203 E-2	* C4432 B-2 C4433 B-2	D4001 D-2 D4003 D-2	* Q4503 D-7 * Q4504 B-6	* R4217 D-3 * R4218 D-3	* R4527 B-5 R4528 E-5
* R5215 B-7	C4204 D-3	* C4434 B-2	D4003 D-2	* Q4505 D-6	* R4219 D-2	R4529 E-5
* R5216 B-7	C4205 D-3	C4435 B-1	D4005 D-3	* Q4506 D-7	* R4220 D-2	R4530 E-6
R5217 A-6 * R5218 B-7	C4206 D-3 * C4207 D-3	C4436 B-1 C4437 B-1	D4006 D-2 * D4201 D-3	* Q4507 B-5 * Q4508 C-6	R4221 D-4 R4222 D-4	R4531 D-5 R4532 E-5
* R5219 B-7	* C4208 E-4	C4438 B-1	* D4401 A-1	* Q4509 D-7	R4223 D-4	R4533 D-5
R5220 A-7 * R5221 C-7	C4209 D-3 C4210 D-3	* C4501 D-5 * C4502 D-5	D4501 E-6 D4502 E-6	* Q4510 D-7 * Q4511 D-7	R4224 D-4 R4301 D-4	R4534 E-5 R4535 E-5
* R5222 B-7	* C4211 E-4	* C4503 D-5	D4503 E-6	* Q4512 D-6	R4302 B-3	R4536 E-5
R5223 A-7 * R5224 C-7	* C4212 D-3 * C4213 D-2	* C4504 D-5 * C4505 D-5	* D4504 C-6 D4601 A-6	Q4513 E-5 Q4514 D-5	R4303 D-4 R4304 C-3	R4537 D-5 R4538 D-5
* R5225 C-7	* C4214 D-3	* C4506 D-5	D4602 A-6	Q4515 E-5	R4305 D-3	R4539 D-5
* R5226 C-8 * R5227 A-2	* C4215 D-2 * C4216 D-2	* C4507 E-5 * C4508 D-5	F4601 B-6	Q4516 E-5 Q4517 D-5	R4306 B-3 R4307 B-3	R4540 D-5 R4541 D-5
* R5228 A-2	* C4217 D-3	* C4509 E-5	F4602 B-6	Q4518 D-5	R4308 B-3	R4542 E-5
S5201 A-4	* C4218 D-3 * C4219 D-3	* C4510 D-5 * C4511 E-5	F4603 B-6 F4604 B-6	Q4519 D-5 Q4520 D-5	R4309 B-3 R4310 C-3	R4543 D-5 R4544 D-5
S5201 A-4 S5202 A-5	* C4223 E-4	* C4511 L-5	F4605 B-6	Q4521 D-5	R4311 C-3	R4545 D-5
S5203 B-5 S5204 A-6	C4301 C-4 C4302 C-4	* C4513 E-5 * C4514 D-5	F4606 B-6	* Q4601 B-6 * Q4602 B-6	R4316 C-3 R4317 C-3	R4546 D-5 * R4549 E-5
S5204 A-0 S5205 A-7	C4302 C-4	* C4514 D-5	* FB4101 B-3	* Q4603 B-6	R4317 0-3	R4550 D-5
S5206 A-8	C4304 C-4	* C4516 E-5	* FB4201 E-4	* Q4604 A-6	R4319 D-3	R4551 D-5
S5207 C-1	C4305 B-4 C4306 C-4	* C4517 D-6 * C4518 D-6	* FB4202 D-4 FB4301 C-4	* Q4605 E-3 * Q4606 E-2	R4401 B-1 R4402 B-1	R4552 D-5 * R4553 E-5
	C4307 C-4	* C4519 D-6		* Q4607 E-2	R4403 B-1	* R4554 B-5
	C4308 C-4 C4309 C-4	* C4520 D-6 * C4521 C-6	* IC4101 C-3 * IC4201 D-3	* Q4608 E-2 * Q4609 E-2	R4404 B-1 R4405 B-1	* R4564 D-5 R4601 A-6
	C4310 C-4	* C4522 D-6	* IC4202 D-4	* Q4610 E-3	R4406 B-1	R4602 B-6
	C4311 D-4 C4312 C-3	* C4523 C-6 * C4524 A-5	IC4301 C-3 IC4401 B-2	* Q4611 E-4	R4407 A-1 * R4408 B-2	R4603 B-6 * R4604 B-6
	C4313 C-3	* C4525 A-6	* IC4501 D-5	R4001 D-2	* R4409 A-2	* R4605 B-6
	C4314 C-3 C4315 B-3	* C4526 C-6 * C4527 D-7	* IC4505 C-5	R4002 D-2 R4003 D-3	R4410 A-2 R4411 B-2	* R4606 A-6 * R4607 B-6
	C4316 D-3	* C4528 D-6	* L4101 B-3	R4004 D-3	R4412 B-2	* R4608 A-6
	C4317 B-3 C4318 C-3	C4529 E-5 * C4530 D-7	* L4102 C-3 * L4201 E-4	R4005 D-3 R4009 A-1	R4413 A-2 * R4414 B-2	* R4609 A-6 * R4610 E-2
	* C4319 B-2	* C4531 D-6	L4202 D-4	* R4010 A-1	R4415 B-2	* R4611 E-2
	C4320 B-3 C4321 B-3	* C4532 D-6 * C4533 B-5	L4301 C-4 * L4401 B-2	R4011 B-1 R4012 B-1	R4416 A-2 R4417 A-2	* R4612 E-3 * R4613 E-3
	C4322 D-4	C4534 E-6	L4501 D-7	R4013 A-1	R4418 B-2	* R4614 E-3
	C4323 C-3	C4535 E-6	L4502 D-6	* R4101 C-4	R4419 A-2	* R4615 E-3
	C4325 B-3	* C4536 B-5 C4538 E-5	L4503 C-6 L4504 D-7	* R4102 C-4 * R4103 C-4	R4420 B-2 R4421 A-2	* R4616 E-3 * R4617 E-3
	C4326 B-3	* C4539 B-5	L4505 D-6	* R4104 C-4	* R4422 B-2	* R4618 E-3
	* C4327 B-2 * C4328 B-3	* C4540 C-5 * C4541 B-5	L4506 D-6 * L4507 B-5	* R4105 C-4 * R4106 C-4	* R4423 B-2 R4424 B-2	T4501 D-6
	C4401 A-1	C4543 D-5	* L4508 B-5	* R4107 C-4	R4425 B-2	
	C4402 B-1	* C4544 C-6	* L4509 B-5	* R4108 B-4	R4426 B-1	

Mounted parts location of the VC-280 board is not shown. Pages from 4-95 to 4-96 are not shown.



# SECTION 5 ADJUSTMENTS

### 1. Adjusting items when replacing main parts and boards.

### • Adjusting items when replacing main parts

When replacing main parts, adjust the items indicated by • in the following table.

**Note1:** When replacing the drum assy. or the mechanism deck, reset the data of page: 7, address: A7 to A9 to "00". (Refer to "Record of Use check" of "5-4. SERVICE MODE")

Adjustment   Adj	4. SERVI	CE MODE")	Г								Re	enla	ced	nar	ts							—	$\neg$
Adjustment Section  Adjust			I	Bloo	ck r	epla	cen	nen	t			·P·M		_		rep	lace	me	nt				-
8. A, B, C, D, E, F, IB, IF page data	1 "	Adjustment	Lens device					Mechanism deck M901 (Drum assy) Note1	Mechanism deck M902 (Capstan motor)	JK-217 board SE5301/5302 (YAW/PITCH sensor)Note2	PD-161 board IC5501 (RGB driver (LCD))	PD-161 board IC5502 (Timing generator (LCD))	LB-077 board IC6101,D6102 (Back light (EVF))	VA-117 board IC4201 (RGB driver (EVF))	VA-117 board IC4202 (Timing generator (EVF))	VA-117 board IC4101 (Video IN/OUT)	CD-365 board IC8001 (CCD image)	VC-280 board IC1402, X1401 (Timing generator)	VC-280 board IC1403 (S/H, A/D conv.)	VC-280 board IC2101 (DV signal process)	VC-280 board IC1901 (EQ, A/D CONV., PLL)	VC-280 board IC1902 (REC/PB AMP)	VC-280 board IC1801 (EVR)
8. A, B, C, D, E, F, IB, IF page data	Initialization of	Initialization of A. D page data	$\vdash$																			$\vdash$	H
E, F, IB, IF page data   Initialization of 8, C page data	I																						П
page data         Initialization of E, F, IF page data           ABMHz origin oscillation adj.         Image data           HALL adj.         Image data           Flange back adj.         Image data           Optical axis adj.         Image data           Color reproduction adj.         Image data           MAX GAIN adj.         Image data           AWB & LV standard data input         Image data           Auto white balance adj.         Image data           Mechanical shutter adj.         Image data           VCO adj.         Image data           RGB AMP adj.         Image data           Contrast adj.         Image data           White balance adj.         Image data           White balance adj.         Image data           White balance adj.         Image data           Contrast adj.         Image data           White balance adj.         Image data           Contrast adj.         Image data	I																						П
AGMHz origin oscillation adj.	1 ' ' '	~ ~																					П
HALL adj.		1	H															•					•
Elange back adj.  Optical axis adj.  Color reproduction adj.  MAX GAIN adj.  AWB & LV standard data input  Auto white balance adj.  Mechanical shutter adj.  Color EVF  Color EVF  RGB AMP adj.  Contrast adj.  White balance adj.  White balance adj.  VCO adj.  RGB AMP adj.  Contrast adj.  Contrast adj.  Contrast adj.  Contrast adj.  Com AMP adj.  Contrast adj.  Com AMP adj.  Contrast adj.  Com AMP adj.  VCO adj.  RGB AMP adj.  Contrast adj.  Contrast adj.  Com AMP adj.  VCO adj.  RGB AMP adj.  Contrast adj.  Com AMP adj.  VCO adj.  System control  Serial No. input  CAP FG duty adj.  Switching position adj.  APC & AEQ adj.  PLL fo & LPF fo adj.  Video  S VIDEO OUT Y level adj.  S VIDEO OUT chroma level adj.			•																				•
Camera         Optical axis adj.         ■		-	•														•						
Camera    Color reproduction adj.			<u> </u>														•						П
MAX GAIN adj.       AWB & LV standard data input         Auto white balance adj.       Auto white balance adj.         Mechanical shutter adj.       Auto white balance adj.         VCO adj.       ARG AMP adj.         Contrast adj.       Auto white balance adj.         White balance adj.       Auto white balance adj.         VCO adj.       ARGB AMP adj.         Contrast adj.       ARGB AMP adj.         Contrast adj.       ARGB AMP adj.         Contrast adj.       ARGB AMP adj.         COM AMP adj.       ARGB AMP adj.         VCOM adj.       ARGB AMP adj.         ARGB AMP adj.       ARGB AMP adj. <tr< td=""><td>Camera</td><td>_</td><td>Ť</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>•</td><td></td><td>•</td><td></td><td></td><td></td><td>П</td></tr<>	Camera	_	Ť														•		•				П
AWB & LV standard data input Auto white balance adj. Mechanical shutter adj.  VCO adj. RGB AMP adj. Contrast adj.  VCO adj. RGB AMP adj.  Contrast adj.  VCO adj. RGB AMP adj.  Contrast adj.  VCO adj. RGB AMP adj.  Contrast adj.  VCO adj. RGB AMP adj.  Contrast																	•		•				
Auto white balance adj.  Mechanical shutter adj.  VCO adj.  RGB AMP adj.  Contrast adj.  White balance adj.  VCO adj.  RGB AMP adj.  Contrast adj.  White balance adj.  VCO adj.  RGB AMP adj.  Contrast adj.  VCO adj.  RGB AMP adj.  Contrast adj.  COM AMP adj.  VOO adj.  White balance adj.  V COM adj.  White balance adj.  System control  Serial No. input  CAP FG duty adj.  Servo, RF  AGC center level adj.  APC & AEQ adj.  PLL fo & LPF fo adj.  Video  Chroma BPF fo adj.  Video  AUTO Adj.  AUTO		-															•		•				
Mechanical shutter adj.			$\vdash$														•		•				
VCO adj.   RGB AMP adj.																	_						П
RGB AMP adj.		3	$\vdash$											•	•								П
Contrast adj.														•									
VCO adj.   RGB AMP adj.	Color EVF	-												•						•			
VCO adj.   RGB AMP adj.		White balance adj.					•						•	•									
RGB AMP adj.			$\vdash$								•	•											П
Contrast adj. COM AMP adj. V COM adj. White balance adj.  System control Serial No. input  CAP FG duty adj. Switching position adj.  AGC center level adj. APC & AEQ adj. PLL fo & LPF fo adj.  Chroma BPF fo adj. S VIDEO OUT chroma level adj.											•												
COM AMP adj.  V COM adj.  White balance adj.  System control  Serial No. input  CAP FG duty adj.  Switching position adj.  Switching position adj.  AGC center level adj.  APC & AEQ adj.  PLL fo & LPF fo adj.  Chroma BPF fo adj.  Video  S VIDEO OUT Y level adj.  S VIDEO OUT chroma level adj.		Contrast adj.									•									•			
White balance adj.  System control  Serial No. input  CAP FG duty adj.  Switching position adj.  Switching position adj.  AGC center level adj.  APC & AEQ adj.  PLL fo & LPF fo adj.  Chroma BPF fo adj.  SVIDEO OUT Y level adj.  S VIDEO OUT chroma level adj.	LCD	COM AMP adj.									•												
System control  Serial No. input  CAP FG duty adj.  Switching position adj.  AGC center level adj.  APC & AEQ adj.  PLL fo & LPF fo adj.  Chroma BPF fo adj.  SVIDEO OUT Y level adj.  S VIDEO OUT chroma level adj.		V COM adj.									•												
CAP FG duty adj.       ●		White balance adj.			•	•					•												
Servo, RF  AGC center level adj.  APC & AEQ adj.  PLL fo & LPF fo adj.  Chroma BPF fo adj.  S VIDEO OUT Y level adj.  S VIDEO OUT chroma level adj.	System control	Serial No. input																					П
Servo, RF  AGC center level adj.  APC & AEQ adj.  PLL fo & LPF fo adj.  Chroma BPF fo adj.  Video  S VIDEO OUT Y level adj.  S VIDEO OUT chroma level adj.		CAP FG duty adj.		•					•													Г	П
APC & AEQ adj.  PLL fo & LPF fo adj.  Chroma BPF fo adj.  S VIDEO OUT Y level adj.  S VIDEO OUT chroma level adj.	Servo, RF	Switching position adj.		•				•															П
PLL fo & LPF fo adj.  Chroma BPF fo adj.  S VIDEO OUT Y level adj.  S VIDEO OUT chroma level adj.				•				•													•	•	П
Chroma BPF fo adj.  S VIDEO OUT Y level adj.  S VIDEO OUT chroma level adj.		APC & AEQ adj.		•				•													•	•	
Video       S VIDEO OUT Y level adj.       ●       ●       ●         S VIDEO OUT chroma level adj.       ●       ●       ●				•				•													•	•	
S VIDEO OUT chroma level adj.		Chroma BPF fo adj.														•						Г	П
	Video	-														•				•			П
Mechanism Tape path adj.		S VIDEO OUT chroma level adj.														•				•			П
	Mechanism	Tape path adj.		•				•	•														

Table. 5-1-1 (1).

### • Adjusting items when replacing a board or EEPROM

When replacing a board or EEPROM, adjust the items indicated by ● in the following table.

when replacing a	a board or EEPROM, adjust the items indi	T		ard	tile	EEPI		labi
		l re		eme	nt		ement	
		16	ргас	eme	iii	Теріас	ement	
Adjustment Section	Adjustment	LB-077 board (COMPLETE)	(COMPLETE)	VA-117 board (COMPLETE)	VC-280 board (COMPLETE)	VC-280 board IC2502 (EEPROM)	VC-280 board IC2901 (EEPROM)	adarW
		LB-077 board	PD-161 board	VA-117 board	VC-280 board	VC-280 board	VC-280 board	Supporting RadarW
Initialization of	Initialization of A, D page data				•			
8, A, B,C, D,	Initialization of B, 1B page data				•		•	
E, F, 1B, 1F	Initialization of 8, C page data				•	•		
page data	Initialization of E, F, 1F page data				•			
	36MHz origin oscillation adj.				•	•		
	HALL adj.				•			•
	Flange back adj.				•			•
	Optical axis adj.				•			
Camera	Color reproduction adj.				•			
	MAX GAIN adj.				•			•
	AWB & LV standard data input				•	•		•
	Auto white balance adj.				•	•		•
	Mechanical shutter adj.				•	•		•
	VCO adj.	$\vdash$		•	•	•		Ť
	RGB AMP adj.			•	•	•		
Color EVF	Contrast adj.			•	•			
	White balance adj.			•	•			
	VCO adj.	Ť	•		•			
	RGB AMP adj.		•		•	•		
	Contrast adj.		•		•			
LCD	COM AMP adj.		•		•	•		
	V COM adj.		•		•			
	White balance adj.		•		•			
System control	Serial No. input				•	•		
	CAP FG duty adj.	T			•	•		•
	Switching position adj.				•	•		•
Servo, RF	AGC center level adj.				•	•		•
Ź	APC & AEQ adj.	T			•	•		•
	PLL fo & LPF fo adj.				•	•		•
	Chroma BPF fo adj.	$\vdash$		•	•	•		
Video	S VIDEO OUT Y level adj.			•	•	•		
		$\vdash$			•	•		
	S VIDEO OUT chroma level adj.						1 1	

Table. 5-1-1 (2).

**Note2:** There are two types of angular velocity sensor.

Type A: CG-L43A0 Type B: CG-L43A1

Replace the broken sensor with a same type sensor. If replace with other type parts, the image will vibrate up and down or left and right during hand-shake correction operations.

### 5-1. CAMERA SECTION ADJUSTMENT

### 1-1. PREPARATIONS BEFORE ADJUSTMENT (CAMERA SECTION)

### 1-1-1. List of Service Tools

• Oscilloscope • Color monitor

• Regulated power supply 
• Digital voltmeter

Ref. No.	Name	Parts Code	Usage
J-1	Filter for color temperature correction (C14)	J-6080-058-A	Auto white balance adjustment/checkWhite balance adjustment/check
	ND filter 1.0	J-6080-808-A	White balance check
J-2	ND filter 0.4	J-6080-806-A	White balance check
	ND filter 0.1	J-6080-807-A	White balance check
J-3	Pattern box PTB-450	J-6082-200-A	
J-4	Color chart for pattern box	J-6020-250-A	
J-5	Adjustment remote commander (RM-95 upgraded) (Note)	J-6082-053-B	
J-6	Siemens star chart	J-6080-875-A	For checking the flange back
J-7	Clear chart for pattern box	J-6080-621-A	
J-8	CPC-8 jig	J-6082-388-A	For adjusting the video section For adjusting the color viewfinder For adjusting the LCD block
J-9	Extension cable (100P, 0.5mm)	J-6082-352-A	For extension between the VA-117 board (CN4002) and the VC-280 board (CN1007)
J-10	Mini pattern box	J-6082-353-B	For adjusting the flange back
J-11	Camera table	J-6082-384-A	For adjusting the flange back

• Vectorscope

**Note:** If the micro processor IC in the adjustment remote commander is not the new micro processor (UPD7503G-C56-12), the pages cannot be switched. In this case, replace with the new micro processor (8-759-148-35).

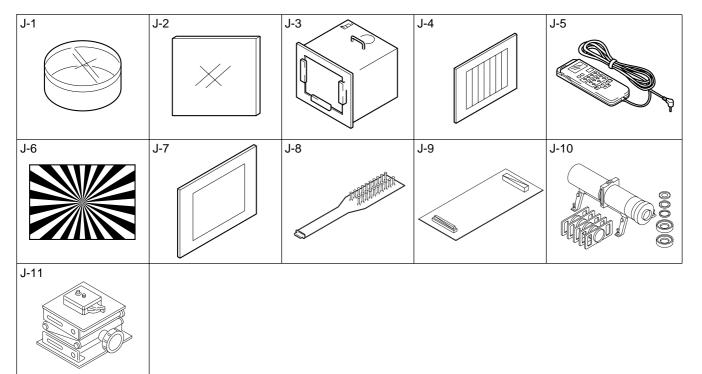


Fig. 5-1-1.

1-1-2. Preparations

**Note1:** For details of how remove the cabinet and boards, refer to "2. DISASSEMBLY".

**Note2:** When performing only the adjustments, the lens block and boards need not be disassembled.

**Note3:** Before performing the adjustments, check the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

1) Connect the equipment for adjustments according to Fig. 5-1-3.

Note4: As removing the cabinet (R) assembly (removing CN1005 of the VC-280 board) means removing the lithium 3V power supply (BT5201 on the CK-108 board), data such as date, time, user-set menus will be lost. After completing adjustments, reset these data. But the self-diagnosis data and the data on history of use (total drum rotation time etc.) will be kept even if the lithium 3V power supply is removed. (Refer to "5-4.Service Mode" for the self-diagnosis data and the data on history of use.)

Note5: Setting the "Forced Camera Power ON" Mode

1) Select page: 0, address: 01, and set data: 01.

2) Select page: D, address: 10, set data: 01, and press the PAUSE button

The above procedure will enable the camera power to be turned on with the control switch block (PS-CX2670) removed. After completing adjustments, be sure to exit the "Forced Camera Power ON Mode".

Note6: Exiting the "Forced Camera Power ON" Mode

1) Select page: 0, address: 01, and set data: 01.

2) Select page: D, address: 10, set data: 00, and press the PAUSE button.

3) Select page: 0, address: 01, and set data: 00.

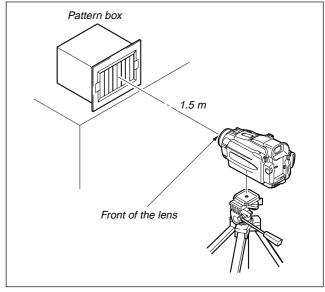


Fig. 5-1-2.

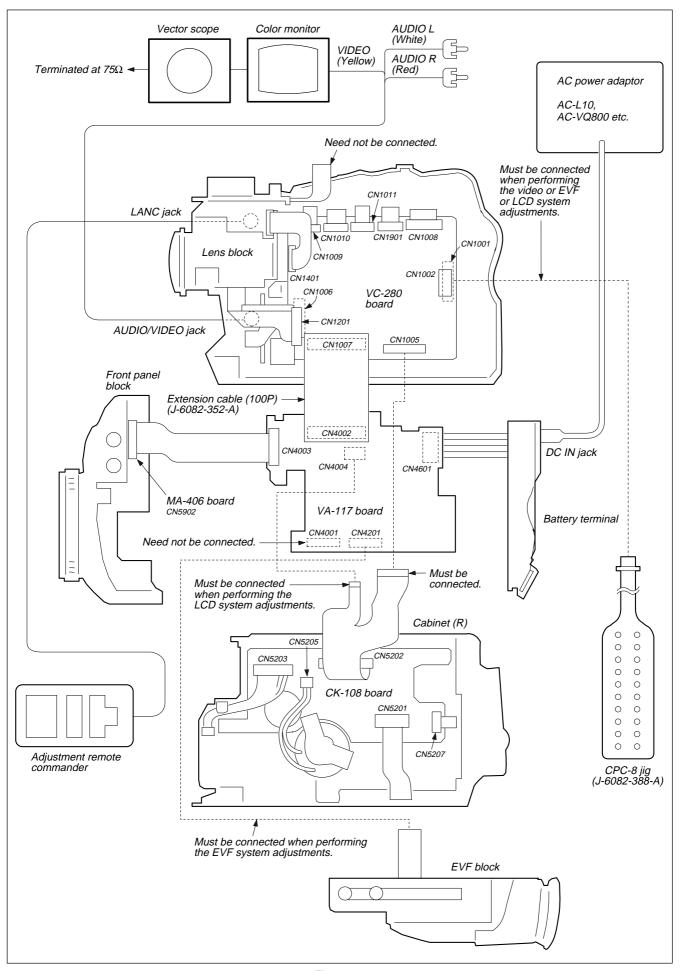


Fig. 5-1-3.

### 1-1-3. Precaution

### 1. Setting the Switch

Unless otherwise specified, set the switches as follows and perform adjustments without loading cassette.

1.	POWER switch (PS-CX2670 block)CAMERA	9.	16:9 WIDE (Menu setting)OFF
2.	NIGHT SHOT switch (Lens block) OFF	10.	PROGRAM AE (Menu setting) AUTO
3.	FOCUS switch (KP-CX2670 block) MANUAL	11.	PICTURE EFECT (Menu setting)OFF
4.	BACK LIGHT switch (KP-CX2670 block)OFF	12.	DIGITAL EFECT (Menu setting)OFF
5.	COLOR SLOW S/ SUPER NS switch (JK-218 board) OFF	13.	WHITE BALANCE (Menu setting) AUTO
6.	DEMO MODE (Menu setting)OFF	14.	AUTO SHUTTER (Menu setting)OFF
7.	STEADY SHOT (Menu setting)OFF	15.	DISPLAY (Menu setting)V-OUT/LCD
8.	DIGITAL ZOOM (Menu setting)OFF	16.	DISPLAY (CK-108 board) ON

#### 2. Order of Adjustments

Basically carry out adjustments in the order given.

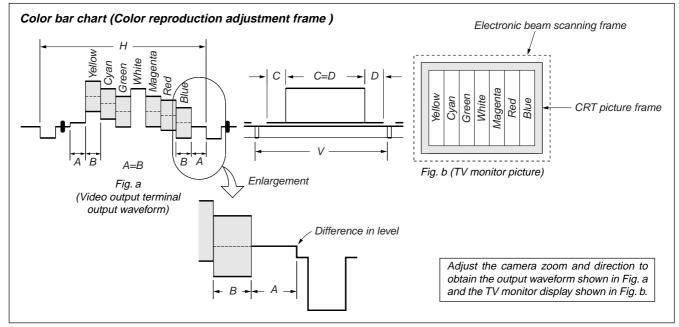


Fig.5-1-4.

#### 3. Subjects

- Color bar chart (Color reproduction adjustment frame)
   When performing adjustments using the color bar chart, adjust the picture frame as shown in Fig. 5-1-4. (Color reproduction adjustment frame)
- Clear chart (Color reproduction adjustment frame)
   Remove the color bar chart from the pattern box and insert a clear chart in its place. (Do not perform zoom operations during this time.)
- 3) Flange back adjustment chart
  Make the chart shown in Fig. 5-1-5 using A0 size (1189mm × 841mm) black and white vellum paper.

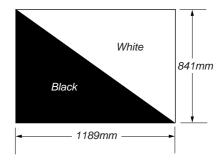


Fig. 5-1-5.

**Note:** Use matte vellum paper bigger than A0, and make sure the edges of the black and white paper joined together are not rough.

# 1-2. INITIALIZATION OF 8, A, B, C, D, E, F, 1B, 1F PAGE DATA

**Note:** When reading or writing the 1B or 1F page data, select page: 0, address: 10, and set data: 01, then select B or F page. The 1B or 1F page can be chosen by this data setting.

After reading or writing, reset the data of page: 0, address: 10 to "00".

## [Connection of the power supply during the initialization of the data.]

- Connect the regulated power supply and the digital voltmeter to the battery terminal as shown in Fig. 5-1-6.
- 2) Adjust the output voltage of the regulated power supply so that the digital voltmeter display is  $6.0 \pm 0.1 Vdc$ .
- 3) Turn off the power supply.
- 4) Turn on the HOLD switch of the adjusting remote commander.
- 5) Turn on the power supply.
- 6) Perform the initialization of the data.

**Note:** This is normal though the following message is indicated on the LCD screen.

"FOR InfoLITHIUM BATTERY ONLY"

### [Initialization Procedure]

- 1. Initialization of A, D page data
- 2. Initialization of B, 1B page data
- 3. Initialization of 8, C page data
- 4. Initialization of E, F, 1F page data

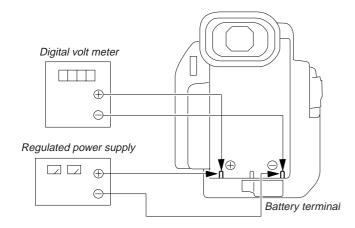


Fig.5-1-6.

### 1-2-1. INITIALIZATION OF A, D PAGE DATA

Note: The data of page: 0, address: 10 must be "00".

### 1. Initializing the A, D Page Data

**Note1:** If the A, D page data has been initialized, the following adjustments

need to be performed again.

1) Modification of A, D page data

**Note2:** The power supply voltage must be  $6.0 \pm 0.1 Vdc$ .

Adjusting page	A
Adjusting Address	10 to FF
Adjusting page	D
Adjusting Address	10 to 67

#### **Initializing Method:**

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	0	10	00	Set the data.
3	7	03		Set the following data.   02 (DCR-TRV16 (NTSC))   03 (DCR-TRV18 (NTSC))   82 (DCR-TRV16E /TRV116E(PAL))   83 (DCR-TRV18E/TRV118E (PAL))
4	7	00		Set the following data. 20 (Initializing A page) 22 (Initializing D page) 28 (Initializing A and D pages)
5	7	01		Set the following data, and press PAUSE button. 20 (Initializing A page) 22 (Initializing D page) 28 (Initializing A and D pages)
6	7	02		Check that the data changes to "01"
7				Perform "Modification of A, D Page Data".

### 2. Modification of A, D Page Data

If the A, D page data has been initialized, change the data of the "Fixed data-2" address shown in the following tables by manual input.

#### **Modifying Method:**

- 1) Before changing the data, select page: 0, address: 01, and set data: 01.
- New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.

**Note:** If copy the data built in the different model, the camcorder may

3) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.

#### Processing after Completing Modification of A, D Page data

Order	Page	Address	Data	Procedure				
1	2	00	29	Set the data.				
2	2	01	29	Set the data, and press PAUSE button.				

Note: If the following symptoms occur after completing of the "Modification of A, D page data", check that the data of the "Fixed data-2" addresses of A and D page are same as those of the same model of the same destination.

- 1) The self-diagnosis code "E:20:00" on the LCD screen is displayed.
- 2) The power is shut off so that unit cannot operate.

### 3. A Page Table

**Note1:** The data of page: 0, address: 10 must be "00".

**Note2:** Fixed data-1: Initialized data. (Refer to "1. Initializing the A, D

Page Data".)

Fixed data-2: Modified data. (Refer to "2. Modification of A, D Page Data").

Address	Remark
00 to 0F	
10 to 17	Fixed data-1
18	Fixed data-2
10 to 19	Fixed data-1
1A	Fixed data-2
1B to 2E	Fixed data-1
2F	Fixed data-2
30 to 31	Fixed data-1
32	Fixed data-2
33	
34 to 51	Fixed data-1
52	Fixed data-2
52 to 53	Fixed data-1
5A	Fixed data-2
5B to CF	Fixed data-1
D0	Fixed data-2
D1	
D2 to FF	Fixed data-1

Table. 5-1-2.

### 4. D Page Table

Note1: The data of page: 0, address: 10 must be "00".

Note2: Fixed data-1: Initialized data. (Refer to "1. Initializing the A, D

Page Data".)

Fixed data-2: Modified data. (Refer to "2. Modification of A, D

Page Data").

Address	Initial value	Remark
00 to 0F		
10	00	Test mode
11 to 12		Fixed data-1
13		Fixed data-2
14 to 15		Fixed data-1
16		Fixed data-2
17 to 21		Fixed data-1
22		Fixed data-2
23		(Modified data. Copy the data
24		built in the same model.)
25		
26		
27 to 29		Fixed data-1
2A		Fixed data-2
2B		
2C		Fixed data-1
2D		Fixed data-2
2E to 36		Fixed data-1
37		Fixed data-2
38		Fixed data-1
39		Fixed data-2
3A		
3B to 56		Fixed data-1
57		Fixed data-2
58		Fixed data-1
59		Fixed data-2
5A		(Modified data. Copy the data
5B		built in the same model.)
5C		
5D		
5E		
5F to 67		Fixed data-1

Table. 5-1-3.

#### 1-2-2. INITIALIZATION OF B, 1B PAGE DATA

**Note:** When reading or writing the B page data, select page: 0, address: 10, and set data: 00.

When reading or writing the 1B page data, select page: 0, address: 10, and set data: 01, then select B page. The 1B page can be chosen by this data setting.

After reading or writing, reset the data of page: 0, address: 10 to "00"

### 1. Initializing the B, 1B Page Data

Note1: If "Initializing the B, 1B Page Data" is performed, all data of the B page and 1B page will be initialized. (It is impossible to initialize a single page.)

**Note2:** If the B, 1B page data has been initialized, the following adjustments need to be performed again.

1) Modification of B, 1B page data

**Note3:** The power supply voltage must be  $6.0 \pm 0.1 Vdc$ .

Adjusting page	В
Adjusting Address	00 to FF
Adjusting page	1B
Adjusting Address	00 to FF

#### **Initializing Method:**

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	0	10	00	Set the data.
3	5	02	FF	Set the data.
4	5	01	F3	Set the data, and press PAUSE button.
5	5	00	01	Set the data, and press PAUSE button.
6	5	02		Check that the data changes to "00".
7				Perform "Modification of B, 1B Page Data".

### 2. Modification of B, 1B Page Data

If the B, 1B page data has been initialized, change the data of the "Fixed data-2" address shown in the following tables by manual input.

### **Modifying Method:**

- Before changing the data, select page: 0, address: 01, and set data: 01.
- When changing the B page data, select page: 0, address: 10, and set data: 00.
- When changing the 1B page data, select page: 0, address: 10, and set data: 01.
  - After completing the modification of 1B page data, reset the data of this address to "00".
- 4) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.

**Note:** If copy the data built in the different model, the camcorder may

5) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.

#### Processing after Completing Modification of B, 1B Page data:

Order	Page	Address	Data	Procedure
1	0	10	00	Set the data.
2	2	00	29	Set the data.
3	2	01	29	Set the data, and press PAUSE button.

### 3. B Page Table

Note1: The data of page: 0, address: 10 must be "00".

Note2: Fixed data-1: Initialized data. (Refer to "1. Initializing the B, 1B Page Data".)

Fixed data-2: Modified data. (Refer to "2. Modification of B, 1B Page Data").

Address	Remark
00 to 01	Fixed data-1
02	Fixed data-2
03 to 16	Fixed data-1
17	Fixed data-2
18 to FF	Fixed data-1

Table. 5-1-4.

#### 4. 1B Page Table

Note1: When reading or writing the 1B page data, select page: 0, address: 10, and set data: 01, then select B page. The 1B page can be chosen by this data setting.

After reading or writing, reset the data of page: 0, address: 10 to "00".

**Note2:** Fixed data-1: Initialized data. (Refer to "1. Initializing the B, 1B Page Data".)

Fixed data-2: Modified data. (Refer to "2. Modification of B, 1B Page Data").

Address	Remark
00 to E0	Fixed data-1
E1	Fixed data-2
E2 to FF	Fixed data-1

Table. 5-1-5.

### 1-2-3. INITIALIZATION OF 8, C PAGE DATA

**Note:** The data of page: 0, address: 10 must be "00".

#### 1. Initializing the 8, C Page Data

Note1: If "Initializing the 8, C Page Data" is performed, all data of the 8 page and C page will be initialized. (It is impossible to initialize a single page.)

**Note2:** If the 8, C page data has been initialized, following adjustments need to be performed again.

- 1) Modification of 8, C page data
- 2) Serial No. input
- 3) Viewfinder system adjustments
- 4) LCD system adjustments
- 5) Servo and RF system adjustments
- 6) Video system adjustments

**Note3:** The power supply voltage must be  $6.0 \pm 0.1 Vdc$ .

Adjusting page	8
Adjusting Address	00 to A3
Adjusting page	С
Adjusting Address	10 to FF

#### **Initializing Method:**

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	0	10	00	Set the data.
3	3	81		Check that the data is "00".
4	3	80	0C	Set the data, and press PAUSE button.
5	3	80		Check that the data changes to "1C".
6				Perform "Modification of 8, C Page Data".

### 2. Modification of 8, C Page Data

If the 8, C page data has been initialized, change the data of the "Fixed data-2" address shown in the following table by manual input.

### **Modifying Method:**

- Before changing the data, select page: 0, address: 01, and set data: 01.
- New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.

**Note:** If copy the data built in the different model, the camcorder may not operate.

- 3) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
- Check that the data of adjustment addresses is the initial value.
   If not, change the data to the initial value.

### Processing after Completing Modification of 8, C Page data

Order	Page	Address	Data	Procedure
1	2	00	29	Set the data.
2	2	01	29	Set the data, and press PAUSE button.

#### 3. 8 Page Table

**Note1:** The data of page: 0, address: 10 must be "00".

Note2: Fixed data-1: Initialized data. (Refer to "1. Initializing the 8, C

Page Data".)

Fixed data-2: Modified data. (Refer to "2. Modification of 8, C

Page Data").

1 a	ge Data").	
Address	Initial value	Remark
00 to 18		Fixed data-1
19		Fixed data-2
1A to 28		Fixed data-1
29		Fixed data-2
2A to 2E		Fixed data-1
2F		Fixed data-2
30 to 3A		Fixed data-1
3B		Fixed data-2
3C to 49		Fixed data-1
4A		Fixed data-2
4B to 51		Fixed data-1
52		Fixed data-2
53 to 59		Fixed data-1
5A		Fixed data-2
5B to 79		Fixed data-1
7A		Fixed data-2
7B		(Modified data. Copy the data
7C		built in the same model.)
7D		
7E		
7F		
80		
81		
82		
83		
84		
85 to 89		Fixed data-1
8A		Fixed data-2
8B		Fixed data-1
8C	08	Serial No. input
8D	00	
8E	46	
8F	01	
90	02	
91	00	
92	00	
93	00	
94 to A3		Fixed data-1

Table. 5-1-6.

4. C Page TableNote1: The data of page: 0, address: 10 must be "00".Note2: Fixed data-1: Initialized data. (Refer to "1. Initializing the 8, C

Page Data".)

Fixed data-2: Modified data. (Refer to "2. Modification of 8, C

Page Data").

Address	Initial value	Remark
00 to 0F		
10	EE	Switching position adj.
11	00	
12	00	
13	00	
14 to 15		Fixed data-1
16	E0	CAP FG duty adj.
17		Fixed data-1
18	2A	AEQ adj.
19	2A	
1A		Fixed data-1
1B	32	AEQ adj.
1C	32	
1D		Fixed data-1
1E	25	AGC center level adj.
1F	3E	PLL fo adj.
20	3E	
21	DC	APC adj.
22	99	LPF fo adj.
23 to 24		Fixed data-1
25	88	S VIDEO out Y level adj.
26	E3	S VIDEO out Cr level adj.
27	A1	S VIDEO out Cb level adj.
28	04	Chroma BPF fo adj.
29	20	PLL fo adj.
2A to 2B		Fixed data-1
2C	03	APC adj.
2D to 34		Fixed data-1
35		Fixed data-2
36		
37 to 4E		Fixed data-1
4F		Fixed data-2
50		
51	87	VCO adj. (EVF)
52	6F	
53		Fixed data-2
54	97	RGB AMP adj. (EVF)
55		Fixed data-1
56	80	White balance adj. (EVF)
57	80	
58	37	Contrast adj. (EVF)
59 to 5E		Fixed data-1
5F		Fixed data-2
60		Fixed data-1
61	80	VCO adj. (LCD)
62	70	
63	80	V COM adj. (LCD)
64	30	RGB AMP adj. (LCD)
65		Fixed data-1
66	C0	COM AMP adj. (LCD)

Address	Initial value	Remark
67	80	White balance adj. (LCD)
68	80	
69	50	Contrast adj. (LCD)
6A		Fixed data-1
6B		Fixed data-2
6C		
6D to 71		Fixed data-1
72		Fixed data-2
73 to 75		Fixed data-1
76		Fixed data-2
77 to 79		Fixed data-1
7A		Fixed data-2
7B to 81		Fixed data-1
82		Fixed data-2
83 to 88		Fixed data-1
89		Fixed data-2
8A		
8B		Fixed data-1
8C		Fixed data-2
8D to A9		
AA		Fixed data-2
AB		Fixed data-1
AC		Fixed data-2
AD		(Modified data. Copy the data
AE		built in the same model.)
AF		
B0 to C0		Fixed data-1
C1		Fixed data-2
C2		Fixed data-1
C3		Fixed data-2
C4		(Modified data. Copy the data
C5		built in the same model.)
C6		
C7 to C8		Fixed data-1
C9		Fixed data-2
CA		(Modified data. Copy the data
СВ		built in the same model.)
CC		
CD		
CE		
CF to D0		Fixed data-1
D1		Fixed data-2
D2		Fixed data-1
D3		Fixed data-2
D4		Fixed data-1
D5		Fixed data-2
D6		
D7		Fixed data-1
D8		Fixed data-2
D9		(Modified data. Copy the data
DA		built in the same model.)
DB		
DC		
DD		

### C page

Address	Initial value	Remark
DE		Fixed data-2
DF		(Modified data. Copy the data
E0		built in the same model.)
E1		Fixed data-1
E2		Fixed data-2
E3		
E4 to E7		Fixed data-1
E8		Fixed data-2
E9		(Modified data. Copy the data
EA		built in the same model.)
EB		
EC		
ED		
EE		
EF		
F0 to F1		Fixed data-1
F2		Fixed data-2
F3		Fixed data-1
F4	00	Emergency memory address
F5	00	
F6	00	
F7	00	
F8	00	
F9	00	
FA	00	
FB	00	
FC	00	
FD	00	
FE	00	
FF	00	

Table. 5-1-7.

### 1-2-4. INITIALIZATION OF E, F, 1F PAGE DATA

**Note:** When reading or writing the E, F page data, select page: 0, address: 10, and set data: 00.

When reading or writing the 1F page data, select page: 0, address: 10, and set data: 01, then select F page. The 1F page can be chosen by this data setting.

After reading or writing, reset the data of page: 0, address: 10 to

### 1. Initializing the E, F, 1F Page Data

Note1: If "Initializing the E, F, 1F Page Data" is performed, all data of the E page, F page and 1F page will be initialized. (It is impossible to initialize a single page.)

Note2: If the E, F, 1F page data has been initialized, following adjustments need to be performed again.

> 1) Modification of E, F, 1F page data 2) 36MHz origin osc. adjustment 3) Camera system adjustments

**Note3:** The power supply voltage must be  $6.0 \pm 0.1 Vdc$ .

Note4: NTSC model: DCR-TRV16/TRV18

PAL model: DCR-TRV16E/TRV18E/TRV116E/TRV118E

Adjusting page	Е
Adjusting Address	00 to FF
Adjusting page	F
Adjusting Address	10 to FF
Adjusting page	1F
Adjusting Address	00 to D9

#### **Initializing Method:**

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	0	10	00	Set the data.
3	6	01		Set the following data, and press PAUSE button. 2D (NTSC), 2F (PAL)
4	6	03	FF	Set the data, and press PAUSE button.
5	6	02		Check that the data changes to "01".
6				Perform "Modification of E, F, 1F Page Data".

#### 2. Modification of E, F, 1F Page Data

If the E, F, 1F page data has been initialized, change the data of the "Fixed data-2" address shown in the following table by manual input.

#### **Modifying Method:**

- Before changing the data, select page: 0, address: 01, and set data: 01.
- When changing the E, F page data, select page: 0, address: 10, and set data: 00.
- When changing the 1F page data, select page: 0, address: 10, and set data: 01.
  - After completing the modification of 1F page data, reset the data of this address to "00".
- New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.

Note: If copy the data built in the different model, the camcorder may not operate.

- When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
- Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.

### Processing after Completing Modification of E, F, 1F Page data

Order	Page	Address	Data	Procedure
1	0	10	00	Set the data.
2	2	00	29	Set the data.
3	2	01	29	Set the data, and press PAUSE button.
4				Perform "36MHz Origin Osc. Adjustment" of the camera system adjustment.

### 3. E Page Table

**Note1:** The data of page: 0, address: 10 must be "00".

Note2: Fixed data-1: Initialized data. (Refer to "1. Initializing the E, F, 1F

Page Data".)

Fixed data-2: Modified data. (Refer to "2. Modification of E, F,

1F Page Data").

Address	Remark
00 to 10	Fixed data-1
11	Fixed data-2
12 to 14	Fixed data-1
15	Fixed data-2
16	
17	
18 to 1B	Fixed data-1
1C	Fixed data-2
1D	
1E to 36	Fixed data-1
37	Fixed data-2
38 to 3C	Fixed data-1
3D	Fixed data-2
3E to 6E	Fixed data-1
6F	Fixed data-2
70 to 94	Fixed data-1
95	Fixed data-2
96 to 97	Fixed data-1
98	Fixed data-2
99	Fixed data-1
9A	Fixed data-2
9B	
9C	Fixed data-1
9D	Fixed data-2
9E	(Modified data. Copy the data
9F	built in the same model.)
A0	
A1	
A2 to AD	Fixed data-1
AE	Fixed data-2
AF to C1	Fixed data-1
C2	Fixed data-2
C3 to E8	Fixed data-1
E9	Fixed data-2
EA	(Modified data. Copy the data
EB	built in the same model.)
EC	
ED	Fixed data-1
EE	Fixed data-2
EF to FF	Fixed data-1

Table. 5-1-8.

### 4. F Page Table

Note1: The data of page: 0, address: 10 must be "00".

Note2: Fixed data-1: Initialized data. (Refer to "1. Initializing the E, F, 1F

Page Data".)

Fixed data-2: Modified data. (Refer to "2. Modification of E, F,

1F Page Data").

	Page Da	/.		
A -1 -1	lusidi al		Downsel.	
Address			Remark	
00 to 0F	NTSC	PAL		
10 to 11			Fixed data-1	
12	80	80		
13 to 16	80	80	36MHz origin osc. adj. Fixed data-1	
17	81	01		
18	5D	81 5D	HALL adj.	
19	3D 17	3D 17		
19 1A to 1C	17	1/	Fixed data-1	
1D	9A	9A		
ļ			MAX GAIN adj.	
1E	80	80	AWB & LV standard data input	
1F	7A	7A	E' 114 1	
20 to 29	40	00	Fixed data-1	
2A	4D	90	AWB & LV standard data input	
2B	3E	3E		
2C	64	43		
2D	59	59		
2E	96	80	Auto white balance adj.	
2F	7A	40		
30 to 32			Fixed data-1	
33	22	22	Color reproduction adj.	
34			Fixed data-1	
35	27	24	Color reproduction adj.	
36 to 39			Fixed data-1	
3A	00	00	Color reproduction adj.	
3B	F1	EF		
3C to 45			Fixed data-1	
46	19	19	Flange back adj.	
47	51	51		
48	20	20		
49	22	22		
4A	13	13		
4B	93	93		
4C	00	00		
4D	00	00		
4E	00	00		
4F	00	00		
50	46	46		
51	19	19		
52	00	00		
53	2A	2A		
54	00	00		
55	00	00		
56	00	00		
57 to 5B			Fixed data-1	
5C			Fixed data-2	
5D				
5E	00	00	Optical axis adj.	
5F to 65			Fixed data-1	

### F page

F page						
Address	Initial	value	Remark			
	NTSC	PAL	,			
66	80	80	Mechanical shutter adj.			
67	80	80	3			
68	80	80				
69	80	80				
6A	80	80				
6B	80	80				
6C	40	40				
6D	00	00				
6E	34	34				
6F	00	00				
70	30	30				
71	00	00				
72	2A	2A				
73	00	00				
74	28	28				
75	00	00				
76	70	70				
77	80	80				
78	80	80				
79	80	80				
7A	80	80				
7B	1E	1E				
7C to 92			Fixed data-1			
93			Fixed data-2			
94						
95 to 9E			Fixed data-1			
9F			Fixed data-2			
A0 to C3			Fixed data-1			
C4			Fixed data-2			
C5 to C9			Fixed data-1			
CA			Fixed data-2			
СВ						
CC to D9			Fixed data-1			
DA			Fixed data-2			
DB to DD			Fixed data-1			
DE			Fixed data-2			
DF to E7			Fixed data-1			
E8			Fixed data-2			
E9						
EA to EB			Fixed data-1			
EC			Fixed data-2			
ED to F4			Fixed data-1			
F5			Fixed data-2			
F6			Fixed data-1			
F7			Fixed data-2			
F8 to FF			Fixed data-1			
F8 to FF			Fixed data-1			

Table. 5-1-9.

### 5. 1F Page Table

**Note1:** When reading or writing the 1F page data, select page: 0, address: 10, and set data: 01, then select F page. The 1F page can be chosen by this data setting.

After reading or writing, reset the data of page: 0, address: 10 to "00".

Note2: Fixed data-1: Initialized data. (Refer to "1. Initializing the E, F, 1F Page Data".)

Fixed data-2: Modified data. (Refer to "2. Modification of E, F, 1F Page Data").

IF	Page Data").
Address	Remark
00	Fixed data-2
01	
02 to 05	Fixed data-1
06	Fixed data-2
07	(Modified data. Copy the data
08	built in the same model.)
09	
0A to 51	Fixed data-1
52	Fixed data-2
53 to 56	Fixed data-1
57	Fixed data-2
58 to 59	Fixed data-1
5A	Fixed data-2
5B	(Modified data. Copy the data
5C	built in the same model.)
5D to 64	Fixed data-1
65	Fixed data-2
66 to 6B	Fixed data-1
6C	Fixed data-2
6D	(Modified data. Copy the data
6E	built in the same model.)
6F	
70 to 73	Fixed data-1
74	Fixed data-2
75 to 77	Fixed data-1
78	Fixed data-2
79	The state of
	Fixed data-1
80	Fixed data-2 Fixed data-1
81 to 97	
98	Fixed data-2
99	(Modified data. Copy the data
9A 9B	built in the same model.)
9C	
9D 9E	
9E 9F	
A0	
A0 A1	
A1 A2	
A3	
A4 to B0	Fixed data-1
B1	Fixed data-1
B2	Fixed data-2
B3	Fixed data-1
B4 to B9	Fixed data-1
לעט דע	1 1/100 0000 1

### 1F page

Address	Remark
BA	Fixed data-2
BB to CB	Fixed data-1
CC	Fixed data-2
CD	(Modified data. Copy the data
CE	built in the same model.)
CF	
D0	
D1 to D9	Fixed data-1

Table. 5-1-10.

### 1-3. CAMERA SYSTEM ADJUSTMENTS

Before perform the camera system adjustments (except for "36MHz Origin Oscillation Adjustment"), check that the specified values of "VIDEO SYSTEM ADJUSTMENTS" are satisfied.

And check that the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

### 1. 36MHz Origin Oscillation Adjustment (VC-280 board)

Set the frequency of the clock for synchronization.

If deviated, the synchronization will be disrupted and the color will become inconsistent.

Subject	Not required	
Measurement Point	Pin ⑫ of IC1402 Or Pin  of IC2401	
Measuring Instrument	Frequency counter	
Adjustment Page	F	
Adjustment Address	12	
Specified Value	Pin ② of IC1402 f=18000000 ± 90Hz Pin ③ of IC2401 f=13500000 ± 68Hz	

**Note1:** The data of page: 0, address: 10 must be "00".

**Note2:** When open the VA-117 board, use the following extension cable

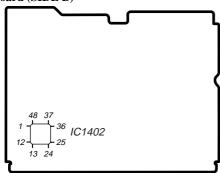
between the VC-280 board CN1007 and VA-117 board CN4002.

J-6082-352-A (100P, 0.5mm)

### Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	F	12		Change the data and set the frequency (f) to the specified value.
3	F	12		Press PAUSE button.
4	0	01	00	Set the data.

### VC-280 board (SIDE B)



### VC-280 board (SIDE A)

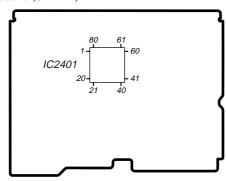


Fig. 5-1-7.

### 2. HALL Adjustment



For detecting the position of the lens iris and ND filter, adjust AMP gain and offset.

<u> </u>		
Subject	Not required	
Measurement Point	Display data of page 1 (Note1)	
Measuring Instrument	Adjustment remote commander	
Adjustment Page	F	
Adjustment Address	17, 18, 19	
Specified Value 1	15 to 19	
Specified Value 2	8A to 8E	

**Note1:** Displayed data of page 1 of the adjustment remote commander.

IRIS display data

**Note2:** The data of page: 0, address: 10 must be "00".

**Switch setting:** 

POWER ......CAMERA

#### Adjusting method:

Adjusti	Adjusting method:						
Order	Page	Address	Data	Procedure			
1	0	01	01	Set the data.			
2	6	94	17	Set the data.			
3	6	95	8C	Set the data.			
4	6	01	6D	Set the data, and press PAUSE button.			
5	6	02		Check that the data changes to "01". (Note3)			
6	6	01	00	Set the data, and press PAUSE button.			

**Note3:** The adjustment data will be automatically input to page: F, address: 17, 18, 19.

#### Checking method:

Order	Page	Address	Data	Procedure
1	0	03	03	Set the data.
2	6	01	01	Set the data, and press PAUSE button.
3	1			Check that the IRIS display data (Note1) satisfies the specified value 1.
4	6	01	03	Set the data, and press PAUSE button.
5	1			Check that the IRIS display data (Note1) satisfies the specified value.2.

Order	Page	Address	Data	Procedure
1	6	94	00	Set the data.
2	6	95	00	Set the data.
3	6	01	00	Set the data, and press PAUSE button.
4	0	03	00	Set the data.
5	0	01	00	Set the data.

### 3. Flange Back Adjustment (Using Minipattern Box)

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

Subject	Siemens star chart with ND filter for the minipattern box (Note1)
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	46 to 56

Note1: Dark Siemens star chart.

Note2: This adjustment should be carried out upon completion of "HALL

Adjustment".

**Note3:** Make the lens horizontal and perform this adjustment.

**Note4:** The data of page: 0, address: 10 must be "00".

**Note5:** Check that the data of page: 6, address: 02 is "00". If not, to page:

6, address: 01, set data: 00, and press the PAUSE button.

### **Switch setting:**

1)	POWER	CAMERA
2)	NIGHT SHOT	OFF

#### **Preparations:**

 The minipattern box is installed as shown in the following figure.

**Note:** The attachment lenses are not used.

- 2) Install the minipattern box so that the distance between it and the front of the lens of the camcorder is less than 3cm.
- 3) Make the height of the minipattern box and the camcorder equal.
- Check that the output voltage of the regulated power supply is the specified voltage.
- Check that at both the zoom lens TELE end and WIDE end, the center of the Siemens star chart and center of the exposure screen coincide.

#### Specified voltage:

The specified voltage varies according to the minipattern box, so adjust the power supply output voltage to the specified voltage written on the sheet which is supplied with the minipattern box.

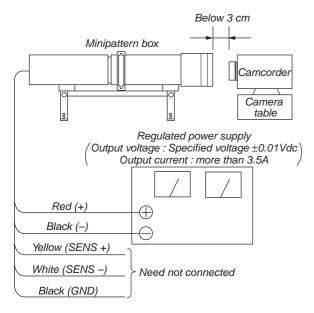


Fig. 5-1-8.

### Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	48	01	Set the data.
3	6	01	13	Set the data, and press PAUSE button. (Note3)
4	6	01	27	Set the data, and press PAUSE button.
5	6	02		Check that the data changes to "01". (Note6)

**Note6:** The adjustment data will be automatically input to page: F, address: 46 to 56

Order	Page	Address	Data	Procedure
1	6	48	00	Set the data.
2	0	01	00	Set the data.
3				Turn off the power and turn on again.
4				Perform "Flange Back Check".

### 4. Flange Back Adjustment (Using Flange Back Adjustment Chart and Subject More Than 500m Away)

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

### 4-1. Flange Back Adjustment (1) RadarW

Subject	Flange back adjustment chart
	(2.0 m from the front of the protection
	glass)
	(Luminance: $350 \pm 50 \text{ lux}$ )
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	46 to 56

Note1: This adjustment should be carried out upon completion of "HALL Adjustment".

**Note2:** Make the lens horizontal and perform this adjustment.

**Note3:** The data of page: 0, address: 10 must be "00".

**Note4:** Check that the data of page: 6, address: 02 is "00". If not, to page: 6, address: 01, set data: 00, and press the PAUSE button.

### **Switch setting:**

1)	POWER	CAMERA
2)	NIGHT SHOT	OFF

### **Preparations:**

 Check that at both the zoom lens TELE end and WIDE end, the center of the chart for the flange back adjustment and center of the exposure screen coincide.

### Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	48	01	Set the data.
3	6	01	13	Set the data, and press PAUSE button. (Note2)
4	6	01	15	Set the data, and press PAUSE button.
5	6	02		Check that the data changes to "01". (Note5)

**Note5:** The adjustment data will be automatically input to page: F, address: 46 to 56.

### **Processing after Completing Adjustments:**

Order	Page	Address	Data	Procedure
1				Turn off the power and turn on again.
2				Perform "Flange Back Adjustment (2)"

### 4-2. Flange Back Adjustment (2) RadarW

Perform this adjustment after performing "Flange Back Adjustment (1)".

Subject	Subject more than 500m away (Subjects with clear contrast such as buildings, etc.)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	46 to 56

**Note1:** Make the lens horizontal and perform this adjustment.

Note2: The data of page: 0, address: 10 must be "00".

Note3: Check that the data of page: 6, address: 02 is "00". If not, to page: 6, address: 01, set data: 00, and press the PAUSE button.

#### **Switch setting:**

1)	POWER	. CAMERA
2)	NIGHT SHOT	OFF

#### **Preparations:**

 Set the zoom lens to the TELE end and expose a subject that is more than 500m away (subject with clear contrast such as building, etc.). (Nearby subjects less than 500m away should not be in the screen.)

### Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	48	01	Set the data.
3	6	01	13	Set the data, and press PAUSE button. (Note2)
4				Place a ND filter on the lens so that the optimum image is obtain.
5	6	01	29	Set the data, and press PAUSE button.
6	6	02		Check that the data changes to "01". (Note4)

**Note4:** The adjustment data will be automatically input to page: F, address: 46 to 56.

Order	Page	Address	Data	Procedure
1	6	48	00	Set the data.
2	0	01	00	Set the data.
3				Turn off the power and turn on again.
4				Perform "Flange Back Check"

### 5. Flange Back Check

Subject	Siemens star	
	(2.0 m from the front of the lens)	
	(Luminance : approx. 200 lux)	
Measurement Point	Check operation on TV monitor	
Measuring Instrument		
Specified Value	Focused at the TELE end and WIDE	
	end.	

**Note1:** The data of page: 0, address: 10 must be "00".

### Switch setting:

**Note2:** When the auto focus is ON, the lens can be checked if it is focused or not by observing the data on the page 1 of the adjustment remote commander.

- 1) Select page: 0, address: 03, and set data: 0F.
- 2) Page 1 shows the state of the focus.

1:00: XX
Odd: Focused
Even: Unfocused

### **Checking method:**

- 1) Select page: 6, address: 40, and set data: 01.
- 2) Select page: 6, address: 41, and set data: 01.
- 3) Place the Siemens star 2.0m from the front of the lens.
- 4) To open the IRIS, decrease the luminous intensity to the Siemens star up to a point before noise appear on the image.
- 5) Shoot the Siemens star with the zoom TELE end.
- 6) Turn on the auto focus.
- 7) Check that the lens is focused (Note2).
- 8) Select page: 6, address: 21, and set data: 10.
- 9) Shoot the Siemens star with the zoom WIDE end.
- 10) Observe the TV monitor and check that the lens is focused.

- 1) Select page: 6, address: 21, and set data: 00.
- 2) Select page: 6, address: 40, and set data: 00.
- 3) Select page: 6, address: 41, and set data: 00.
- 4) Select page: 0, address: 03, and set data: 00.

#### 6. Optical Axis Adjustment

Align the lens Optical Axis with that of the CCD imager. If deviated, center of picture can lose focus when zoom is operated from the WIDE end to the TELE end.

Subject	Siemens star
Measurement Point	Check on the monitor TV
Measuring Instrument	
Adjustment Page	F
Adjustment Address	5E

**Note1:** This adjustment should be carried out upon completion of "Flange back adjustment".

**Note2:** The data of page: 0, address: 10 must be "00".

**Note3:** Check that the data of page: 6, address: 48 is "00". If not, set data: 00 to this address.

### Switch setting:

1)	POWER	CAMERA
2)	DIGITAL ZOOM (Menu display)	OFF
3)	STEADY SHOT (Menu display)	OFF

### Preparations before adjustments:

- 1) Playback the monoscope segment of the system check tape (XH5-5 (NTSC), XH5-5P (PAL),).
- Attach the optical axis frame chart (transparent) on the monitor TV screen. Center of monoscope image and that of optical axis frame must be agree.
- 3) Set to the camera mode.

### Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- Select page: F, address: 5E, set data: 00, and press the PAUSE button.
- 3) Place the Siemens star 2.0 m away from the front of the lens.
- 4) Shoot the Siemens star with the zoom TELE end.
- 5) Point the lens toward the Siemens star chart until center of the Siemens star is located in the center of the optical axis frame.
- 6) Shoot the Siemens star with the zoom WIDE end.
- 7) Measure on the monitor TV screen in which area of the optical axis frame the center of the Siemens star is located. Measure the amount of displacement (distance between the center of the Siemens star and the center of the optical axis frame.) The measurement value is named L1.
- 8) Read the correction data corresponding to the area from Table 5-1-11.
- Input the correction data to page: F, address: 5E, and press the PAUSE button
- 10) Shoot the Siemens star with the zoom TELE end.
- 11) Point the lens toward the Siemens star chart until center of the Siemens star is located in the center of the optical axis frame.
- 12) Shoot the Siemens star with the zoom WIDE end.
- 13) Measure the amount of displacement (distance between the center of the Siemens star and the center of the optical axis frame.) The measurement value is named L2.
- 14) Compare the values L1 and L2, and confirm that L2 is smaller than L1. If L2 is lager than L1, select page: F, address: 5E, set data: 00, and press the PAUSE button.

Area	Display phase	Correction data (Page: F, address: 5E)
1	22.6° to 67.5°	01
2	67.6° to 112.5°	02
3	112.6° to 157.5°	03
4	157.6° to 202.5°	04
5	202.6°to 247.5°	05
6	247.6° to 292.5°	06
7	292.6° to 337.5°	07
8	337.6° to 22.5°	08

Table 5-1-11.

### **Processing after Completing Adjustments:**

1) Select page: 0, address: 01, and set data: 00.

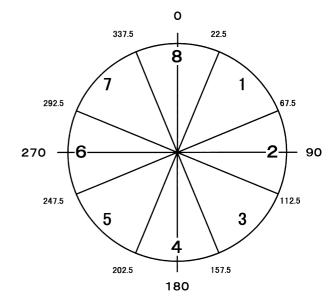


Fig. 5-1-9.

### 7. Picture Frame Setting

Subject	Color bar chart	
	(Color reproduction adjustment frame)	
	(1.5m from the front of the lens)	
Measurement Point	Video output terminal	
Measuring Instrument	Oscilloscope and TV monitor	
Specified Value	A=B, C=D, E=F	

Note1: The following adjustments should be carried out upon completion of "Flange back adjustment".

**Note2:** The data of page: 0, address: 10 must be "00".

### **Switch setting:**

1)	POWER	CAMERA
2)	NIGHT SHOT	OFF
3)	DIGITAL ZOOM (Menu display)	OFF
4)	STEADY SHOT (Menu display)	OFF

### **Setting method:**

- 1) Select page: 6, address: 48, and set data: 01.
- Adjust the zoom and the camera direction, and set to the specified position.
- Mark the position of the picture frame on the monitor display, and adjust the picture frame to this position in following adjustments using "Color reproduction adjustment frame".

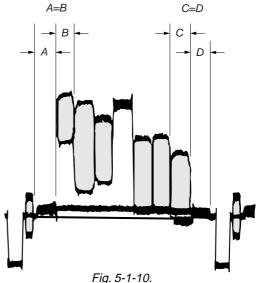
### **Processing after Completing Camera System Adjustments:**

After completing the camera system adjustments, release the data settings.

1) Select page: 6, address: 48, and set data: 00.

### Check on the oscilloscope

### 1. Horizontal period



### 2. Vertical period

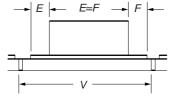


Fig. 5-1-11.

### Check on the monitor TV (Underscanned mode)

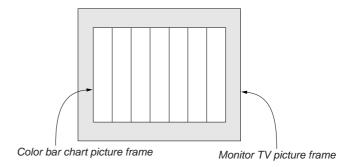


Fig. 5-1-12.

### 8. Color Reproduction Adjustment

Adjust the color Separation matrix coefficient so that proper color reproduction is produced.

Subject	Color bar chart (Color reproduction adjustment frame)
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	33, 35, 3A, 3B
Specified Value	All color luminance points should settle within each color reproduction frame.

Note1: The data of page: 0, address: 10 must be "00".

Note2: NTSC model: DCR-TRV16/TRV18

PAL model: DCR-TRV16E/TRV18E/TRV116E/TRV118E

### Switch setting:

1)	POWER	CAMERA
2)	NIGHT SHOT	OFF
3)	DIGITAL ZOOM (Menu display)	OFF
4)	STEADY SHOT (Menu display)	OFF

### Adjusting method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 6, address: 48, and set data: 01.
- 3) Select page: 6, address: 9D, and set data: 29.
- Select page: 6, address: 01, set data: 3D, and press the PAUSE button.
- 5) Select page: F, address: D0, set the following data, and press the PAUSE button.

37 (NTSC), B7 (PAL)

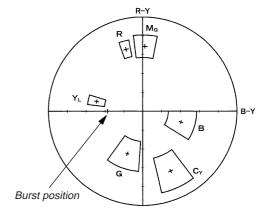
- Adjust the GAIN and PHASE of the vectorscope, and adjust the burst luminance point to the burst position of the color reproduction frame.
- Change the data of page: F, address: 33, 35, 3A and 3B, and settle each color luminance point in each color reproduction frame.

**Note:** Be sure to press the PAUSE button of the adjustment remote commander before changing the addresses. If not, the new data will not be written to the memory.

### **Processing after Completing Adjustments:**

- Select page: 6, address: 01, set data: 00, and press the PAUSE button.
- 2) Select page: 6, address: 48, and set data: 00.
- 3) Select page: 6, address: 9D, and set data: 00.
- 4) Select page: 0, address: 01, and set data: 00.

### For NTSC model



### For PAL model

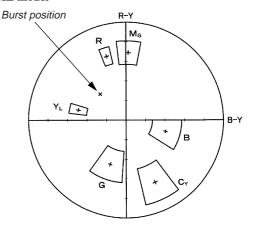


Fig. 5-1-13.

### 9. MAX GAIN Adjustment RadarW

Setting the minimum illumination.

If it is not consistent, the image level required for taking subjects in low illuminance will not be produced (dark).

Subject	Clear chart (Color reproduction adjustment frame)
Adjustment Page	F
Adjustment Address	1D

**Note1:** The data of page: 0, address: 10 must be "00".

**Note2:** Check that the data of page: 6, address: 02 is "00". If not, to page: 6, address: 01, set data: 00, and press the PAUSE button.

#### **Switch setting:**

	8	
1)	POWER	CAMERA
2)	NIGHT SHOT	OFF
3)	DIGITAL ZOOM (Menu display)	OFF
4)	STEADY SHOT (Menu display)	OFF

### Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	6	48	01	Set the data.
3	6	96	27	Set the data.
4	6	97	00	Set the data.
5	6	01	6F	Set the data, and press PAUSE button.
6	6	02		Check that the data changes to "01". (Note3)

**Note3:** The adjustment data will be automatically input to page: F, address: 1D.

### **Processing after Completing Adjustments**

Order	Page	Address	Data	Procedure
1	6	48	00	Set the data.
2	6	96	00	Set the data.
3	6	97	00	Set the data.
4	6	01	00	Set the data, and press PAUSE button.
5	0	01	00	Set the data.

### 10. Auto White Balance & LV Standard Data Input RadarW

Adjust the white balance reference at 3200K, and adjust the normal coefficient of the light value.

Subject	Clear chart
	(Color reproduction adjustment frame)
Measurement Point	Display data of page 1 (Note5)
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	1E, 1F, 2A to 2D
Specified Value	0FF0 to 1010

**Note1:** This adjustments should be carried out upon completion of "Color reproduction adjustment" and "MAX GAIN adjustment".

**Note2:** After the power is turned on, this adjustment can be done only once.

**Note3:** The data of page: 0, address: 10 must be "00".

**Note4:** Check that the data of page: 6, address: 02 is "00". If not, to page: 6, address: 01, set data: 00, and press the PAUSE button.

**Note5:** Displayed data of page 1 of the adjustment remote commander.

1 : XX : XX Display data

#### Switch setting:

1)	POWER	. CAMERA
2)	NIGHT SHOT	OFF
3)	DIGITAL ZOOM (Menu display)	OFF
	STEADY SHOT (Menu display)	

### Adjusting method:

Order	Page	Address	Data	Procedure	
1	0	01	01	Set the data.	
2	6	48	01	Set the data.	
3				Wait for 2 sec.	
4	6	01	11	Set the data, and press PAUSE button.	
5	6	01	0D	Set the data, and press PAUSE button.	
6	6	02		Check that the data changes to "01". (Note6)	
7	0	03	1E	Set the data.	
8	1			Check that the display data (Note5) satisfies the specified value.	

**Note6:** The adjustment data will be automatically input to page: F, address: 1E, 1F, 2A to 2D.

rocessing area completing registerions					
Order	Page	Address	Data	Procedure	
1	6	01	00	Set the data, and press PAUSE button.	
2	6	48	00	Set the data.	
3	0	03	00	Set the data.	
4	0	01	00	Set the data.	
5				Perform "Auto White Balance Adjustment".	

### 11. Auto White Balance Adjustment RadarW

Adjust to the proper auto white balance output data. If it is not correct, auto white balance and color reproducibility will be poor.

Subject	Clear chart	
	(Color reproduction adjustment frame)	
Filter	Filter C14 for color temperature	
	correction	
Measurement Point	Display data of page 1 (Note5)	
Measuring Instrument	Adjustment remote commander	
Adjustment Page	F	
Adjustment Address	2E, 2F	
Specified Value	R ratio: 2B40 to 2C40	
	B ratio: 5980 to 5A80	

Note1: This adjustments should be carried out upon completion of "Auto White Balance & LV Standard Data Input".

Note2: After the power is turned on, this adjustment can be done only once.

**Note3:** The data of page: 0, address: 10 must be "00".

**Note4:** Displayed data of page 1 of the adjustment remote commander.

1: XX: XX-Display data

### **Switch setting:**

1)	POWER	CAMERA
2)	NIGHT SHOT	OFF
3)	DIGITAL ZOOM (Menu display)	OFF
4)	STEADY SHOT (Menu display)	OFF

### Adjusting method:

Order	Page	Address	Data	Procedure	
1				Place the C14 filter for color temperature correction on the lens.	
2	0	01	01	Set the data.	
3	6	48	01	Set the data.	
4	F	3E		Write down the data.	
5	F	3E	2B	Set the data, and press PAUSE button.	
6	F	3F		Write down the data.	
7	F	3F	C0	Set the data, and press PAUSE button.	
8	F	40		Write down the data.	
9	F	40	5A	Set the data, and press PAUSE button.	
10	F	41		Write down the data.	
11	F	41	00	Set the data, and press PAUSE button.	
12	6	01	83	Set the data, and press PAUSE button.	
13	6	01	81	Set the data, and press PAUSE button.	
14	6	02		Check that the data changes to "01". (Note5)	
15	6	01	3F	Set the data, and press PAUSE button.	
16	0	03	04	Set the data.	
17	1			Check that the display data (Note4) satisfies the R ratio specified value.	
18	0	03	05	Set the data.	
	1			Check that the display data (Note4) satisfies the B ratio specified value.	

**Note5:** The adjustment data will be automatically input to page: F, address: 2E, 2F.

Order	Page	Address	Data	Procedure
1	6	01	00	Set the data, and press PAUSE button.
2	6	48	00	Set the data.
3	F	3E		Set the data that is written down at step 3, and press PAUSE button.
4	F	3F		Set the data that is written down at step 5, and press PAUSE button.
5	F	40		Set the data that is written down at step 7, and press PAUSE button.
6	F	41		Set the data that is written down at step 9, and press PAUSE button.
7	0	03	00	Set the data.
8	0	01	00	Set the data.

### 12. White Balance Check

Radar	W
าลนลเ	VV.

Subject	Clear chart	
	(Color reproduction adjustment frame)	
Filter	Filter C14 for color temperature	
	correction	
	ND filter 1.0 and 0.4 and 0.1	
Measurement Point	Video output terminal	
Measuring Instrument	Vectorscope	
Specified Value	Fig. 5-1-14. A to B	

**Note1:** The data of page: 0, address: 10 must be "00".

### Switch setting:

1)	POWER	CAMERA
2)	NIGHT SHOT	OFF
3)	DIGITAL ZOOM (Menu display)	OFF
4)	STEADY SHOT (Menu display)	OFF

### Checking method:

Order	Page	Address	Data	Procedure
				Indoor white balance check
1				Check that the lens is not covered with either filter.
2	6	48	01	Set the data.
3	6	01	0F	Set the data, and press PAUSE button.
4				Check that the center of the white luminance point is within the circle shown Fig. 5-1-14. A.
5	6	01	00	Set the data, and press PAUSE button.
				Outdoor white balance check
6				Place the C14 filter on the lens.
7	6	01	3F	Set the data, and press PAUSE button.
8				Check that the center of the white luminance point is within the circle shown Fig. 5-1-14. B.
9				Remove the C14 filter.
				LV data check
10				Place the ND filter 1.5 (1.0+0.1+0.4) on the lens.
11	6	01	00	Set the data, and press PAUSE button.
12	0	03	06	Set the data.
13	1			Check that the display data (Note2) satisfies the specified value.  Specified value: 8000 to 8BC0

**Note2:** Displayed data of the adjustment remote commander.

Order	Page	Address	Data Procedure	
1	6	01	00	Set the data, and press PAUSE button.
2	6	48	00	Set the data.
3	0	03	00	Set the data.

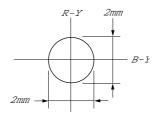


Fig. 5-1-14 (A).

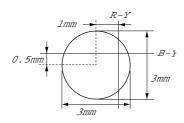


Fig. 5-1-14 (B).

# 13. Mechanical Shutter Adjustment (DCR-TRV18/TRV18E/TRV118E)



Adjustment Page	F
Adjustment Address	66 to 7B

**Note:** The data of page: 0, address: 10 must be "00".

### Adjusting method:

1) Select page: 0, address: 01, and set data: 01.

Input the following data to page: F, addresses: 66 to 7B.
 Note: Press the PAUSE button of the adjustment remote commander each time to set the data.

Address	DA	TA	
Address	NTSC	PAL	
66	80	80	
67	80	80	
68	80	80	
69	80	80	
6A	80	80	
6B	80	80	
6C	40	3D	
6D	00	00	
6E	34	32	
6F	00	00	
70	30	2C	
71	00	00	
72	2A	27	
73	00	00	
74	28	24	
75	00	00	
76	70	6B	
77	80	7A	
78	80	83	
79	80	83	
7A	80	75	
7B	1E	1B	

3) Select page: 0, address: 01, and set data: 00.

### **COLOR ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENT**

Note1: When replacing the LCD unit, be careful to prevent damages

caused by static electricity.

Note2: Before performing the adjustments, check the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

Note3: As the PANEL CLOSE switch is attached to the cabinet (R), this

cabinet must be attached when performing adjustments.

If you perform the adjustments with cabinet (R) removed, set the following data.

1) Select page: 3, address: C4, and set data: 67.

2) Select page: 3, address: C5, and set data: 01. Reset the data after completing adjustment.

1) Select page: 3, address: C4, and set data: 00. 2) Select page: 3, address: C5, and set data: 00.

Note4: NTSC model: DCR-TRV16/TRV18

PAL model: DCR-TRV16E/TRV18E/TRV116E/TRV118E

### [Adjusting connector]

Most of the measuring points for adjusting the viewfinder system are concentrated in CN1002 of VC-280 board.

Connect the Measuring Instruments via the CPC-8 jig (J-6082-388-A). The following table shows the Pin No. and signal name of CN1002.

Pin No.	Signal Name	Pin No.	Signal Name
1	N.C.	2	N.C.
3	N.C.	4	EVF VG
5	EVF VCO	6	GND
7	PANEL VG	8	PD VCO
9	H START	10	XHD/PSIG
11	PANEL COM	12	TMS (MAKER CHECK)
13	N.C.	14	N.C.
15	N.C.	16	GND
17	SWP	18	RF IN/LANC JACK IN
19	GND	20	RF MON

Table 5-1-12.

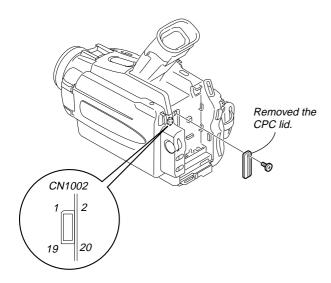


fig. 5-1-15.

### 1. VCO Adjustment (VA-117 board)

Set the VCO free-run frequency. If deviated, the EVF screen will be blurred.

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ⑤ of CN1002 of VC-280 board (EVF VCO)
Measuring Instrument	Frequency counter
Adjustment Page	С
Adjustment Address	51, 52
Specified Value	$f = 15734 \pm 30$ Hz (NTSC)
	$f = 15625 \pm 30$ Hz (PAL)

Note1: The data of page: 0, address: 10 must be "00".

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	С	51		Change the data and set the VCO frequency (f) to the specified value.
3	C	51		Press PAUSE button.
4	С	51		Read the data, and this data is named D <sub>51</sub> .
5				Convert D <sub>51</sub> to decimal notation, and obtain D <sub>51</sub> '. (Note2)
6				Calculate Ds2' using following equations (Decimal calculation) [NTSC model]  When Ds1' $\leq$ 231  Ds2' = Ds1'+24  When Ds1' > 231  Ds2' = 255  [PAL model]  When Ds1' $\geq$ 24  Ds2' = Ds1' - 24  When Ds1' < 24  Ds2' = 0
7				Convert D52' to a hexadecimal number, and obtain D52. (Note2)
8	С	52	D52	Set the data, and press PAUSE button.
9	0	01	00	Set the data.

Note2: Refer to "Table 5-4-1. Hexadecimal-decimal Conversion Table".

### 2. RGB AMP Adjustment (VA-117 board)

Set the D range of the RGB driver used to drive the LCD to the specified value. If deviated, the LCD screen will become blackish or saturated (whitish).

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin (4) of CN1002 of VC-280 board (EVF VG)
Measuring Instrument	Oscilloscope
Adjustment Page	С
Adjustment Address	54
Specified Value	$A = 7.20 \pm 0.10 V (NTSC)$
	$A = 7.14 \pm 0.10 V (PAL)$

**Note:** The data of page: 0, address: 10 must be "00".

### Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	С	54		Change the data and set the voltage (A) between the reversed waveform pedestal and non-reversed waveform pedestal to the specified value.
3	C	54		Press PAUSE button.
4	0	01	00	Set the data.

### 3. Contrast Adjustment (VA-117 board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the screen image will be blackish or saturated (whitish).

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin <b>4</b> of CN1002 of VC-280 board (EVF VG)
Measuring Instrument	Oscilloscope
Adjustment Page	С
Adjustment Address	58
Specified Value	$A = 2.52 \pm 0.10V \text{ (NTSC)}$ $A = 2.38 \pm 0.10V \text{ (PAL)}$

**Note:** The data of page: 0, address: 10 must be "00".

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	С	58		Change the data and set the voltage (A) between the 100 IRE and 0 IRE (pedestal) to the specified value. (The data should be "00" to "7F".)
3	C	58		Press PAUSE button.
4	0	01	00	Set the data.

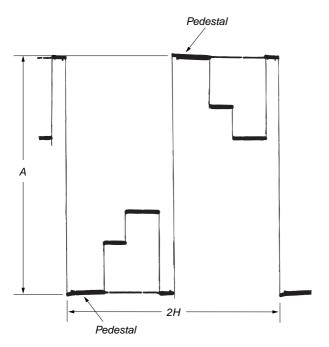


Fig. 5-1-16.

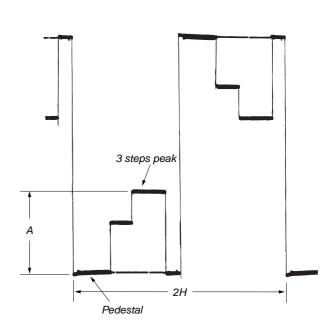


Fig. 5-1-17.

### 4. White Balance Adjustment (VA-117 board)

Correct the white balance.

If deviated, the reproduction of the EVF screen may degenerate.

Mode	Camera
Subject	Arbitrary
Measurement Point	Check on EVF screen
Measuring Instrument	
Adjustment Page	С
Adjustment Address	56, 57
Specified Value	The EVF screen should not be colored.

**Note1:** Check the white balance only when replacing the following parts.

If necessary, adjust them.

1. LCD panel

2. Light induction plate

3. IC4201

**Note2:** The data of page: 0, address: 10 must be "00".

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	С	56	80	Set the data, and press PAUSE button.
3	С	57	80	Set the data, and press PAUSE button.
4	С	57		Check that the EVF screen is not colored. If not colored, proceed to step 10.
5	С	56		Change the data so that the EVF screen is not colored.
6	C	56		Press PAUSE button.
7	С	57		Change the data so that the EVF screen is not colored.
8	C	57		Press PAUSE button.
9	С	57		If the EVF screen is colored, repeat steps 5 to 9.
10	0	01	00	Set the data.

### 1-5. LCD SYSTEM ADJUSTMENT

**Note1:** The back light (fluorescent tube) is driven by a high voltage AC power supply. Therefore, do not touch the back light holder to avoid electrical shock.

**Note2:** When replacing the LCD unit, be careful to prevent damages

caused by static electricity.

**Note3:** Before performing the adjustments, check the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

Note4: NTSC model: DCR-TRV16/TRV18

PAL model: DCR-TRV16E/TRV18E/TRV116E/TRV118E

#### **Switch setting:**

LCD BRIGHT(Menu setting)...... Center.

### [Adjusting connector]

Most of the measuring points for adjusting the LCD system are concentrated in CN1002 of the VC-280 board. Connect the measuring instruments via the multi CPC-8 jig (J-6082-388-A). The following table shows the Pin No. and signal name of CN1002.

Pin No.	Signal Name	Pin No.	Signal Name
1	N.C.	2	N.C.
3	N.C.	4	EVF VG
5	EVF VCO	6	GND
7	PANEL VG	8	PD VCO
9	H START	10	XHD/PSIG
11	PANEL COM	12	TMS (MAKER CHECK)
13	N.C.	14	N.C.
15	N.C.	16	GND
17	SWP	18	RF IN/LANC JACK IN
19	GND	20	RF MON

Table 5-1-13.

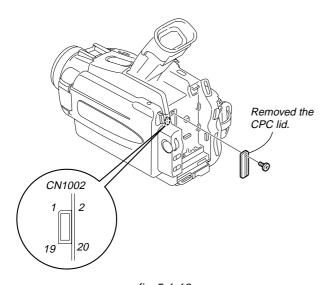


fig. 5-1-18.

### 1. VCO Adjustment (PD-161 board)

Set the VCO free-run frequency. If deviated, the LCD screen will be blurred.

Mode	VTR stop	
Signal	No signal	
Measurement Point	Pin <b>9</b> of CN1002 of VC-280 board (H START)	
Measuring Instrument	Frequency counter	
Adjustment Page	С	
Adjustment Address	61, 62	
Specified Value	$f = 15734 \pm 30$ Hz (NTSC)	
	$f = 15625 \pm 30$ Hz (PAL)	

**Note1:** The data of page: 0, address: 10 must be "00".

### Adjusting method:

Aujusting methou.					
Order	Page	Address	Data	Procedure	
1	0	01	01	Set the data.	
2	С	61		Change the data and set the VCO frequency (f) to the specified value.	
3	C	61		Press PAUSE button.	
4	С	61		Read the data, and this data is named D <sub>61</sub> .	
5				Convert D <sub>61</sub> to decimal notation, and obtain D <sub>61</sub> '. (Note2)	
6				Calculate D <sub>62</sub> ' using following equations (Decimal calculation) [NTSC model]  When D <sub>61</sub> ' $\leq$ 229  D <sub>62</sub> ' = D <sub>61</sub> ' + 26  When D <sub>61</sub> ' > 229  D <sub>62</sub> ' = 255  [PAL model]  When D <sub>61</sub> ' $\geq$ 26  D <sub>62</sub> ' = D <sub>61</sub> ' - 26  When D <sub>61</sub> ' < 26  D <sub>62</sub> ' = 0	
7				Convert D <sub>62</sub> ' to a hexadecimal number, and obtain D <sub>62</sub> . (Note2)	
8	С	62	D62	Set the data, and press PAUSE button.	
9	0	01	00	Set the data.	

**Note2:** Refer to "Table 5-4-1. Hexadecimal-decimal Conversion Table".

### 2. RGB AMP Adjustment (PD-161 board)

Set the D range of the RGB decoder used to drive the LCD to the specified value. If deviated, the LCD screen will become blackish or saturated (whitish).

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ⑦ of CN1002 of VC-280 board (PANEL VG) Ext. trigger: Pin ⑪ of CN1002 of VC-280 board (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	С
Adjustment Address	64
Specified Value	$A = 3.52 \pm 0.05V \text{ (NTSC)}$ $A = 3.63 \pm 0.05V \text{ (PAL)}$

**Note:** The data of page: 0, address: 10 must be "00".

### Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	С	64		Change the data and set the voltage (A) between the reversed waveform pedestal and non-reversed waveform pedestal to the specified value. (The data should be "00" to "3F".)
3	C	64		Press PAUSE button.
4	0	01	00	Set the data.

### 3. Contrast Adjustment (PD-161 board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the screen image will be blackish or saturated (whitish).

<u> </u>	
Mode	VTR stop
Signal	No signal
Measurement Point	Pin ⑦ of CN1002 of VC-280 board (PANEL VG) Ext. trigger: Pin ⑪ of CN1002 of VC-280 board (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	C
Adjustment Address	69
Specified Value	$A = 3.00 \pm 0.05 V (NTSC)$
	$A = 3.37 \pm 0.05 V (PAL)$

**Note:** The data of page: 0, address: 10 must be "00".

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	С	69		Change the data and set the voltage (A) between the 100 IRE and 0 IRE (pedestal) to the specified value. (The data should be "00" to "7F".)
3	C	69		Press PAUSE button.
4	0	01	00	Set the data.

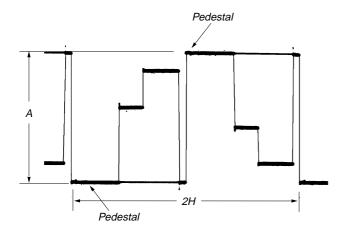


Fig. 5-1-19.

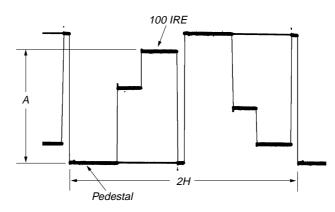


Fig. 5-1-20.

## 4. COM AMP Adjustment (PD-161 board)

Set the common electrode drive signal level of LCD to the specified value.

VTR stop
No signal
Pin ① of CN1002 of VC-280 board (PANEL COM)
Oscilloscope
С
66
$A = 5.97 \pm 0.05V (NTSC)$ $A = 6.34 \pm 0.05V (PAL)$

**Note:** The data of page: 0, address: 10 must be "00".

#### Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	С	66		Change the data and set the PANEL COM signal level (A) to the specified value.
3	C	66		Press PAUSE button.
4	0	01	00	Set the data.

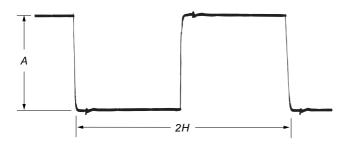


Fig. 5-1-21.

## 5. V COM Adjustment (PD-161 board)

Set the DC bias of the common electrode drive signal of LCD to the specified value.

If deviated, the LCD display will move, producing flicker and conspicuous vertical lines.

Mode	VTR stop
Signal	No signal
Measurement Point	Check on LCD display
Measuring Instrument	
Adjustment Page	С
Adjustment Address	63
Specified Value	The brightness difference between the section A and section B is minimum.

**Note1:** This adjustment should be carried out upon completion of the following adjustments.

RGB AMP Adjustment Contrast Adjustment COM AMP Adjustment

**Note2:** The data of page: 0, address: 10 must be "00".

#### Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	С	63		Change the data so that the brightness of the section A and that of the section B is equal.
3	C	63		Subtract 8 from the data.
4	C	63		Press PAUSE button.
5	0	01	00	Set the data.

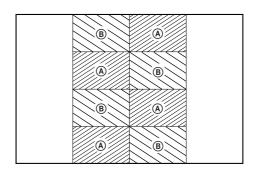


Fig. 5-1-22.

## 6. White Balance Adjustment (PD-161 board)

Correct the white balance.

If deviated, the reproduction of the LCD screen may degenerate.

Mode	VTR stop
Signal	No signal
Measurement Point	Check on LCD screen
Measuring Instrument	
Adjustment Page	С
Adjustment Address	67, 68
Specified Value	The LCD screen should not be colored.

**Note1:** Check the white balance only when replacing the following parts.

If necessary, adjust them.

1. LCD panel

2. Light induction plate

3. IC5501

**Note2:** The data of page: 0, address: 10 must be "00".

#### Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	С	67	80	Set the data, and press PAUSE button.
3	С	68	80	Set the data, and press PAUSE button.
4	С	68		Check that the LCD screen is not colored. If not colored, proceed to step 10.
5	С	67		Change the data so that the LCD screen is not colored.
6	C	67		Press PAUSE button.
7	С	68		Change the data so that the LCD screen is not colored.
8	C	68		Press PAUSE button.
9	С	68		If the LCD screen is colored, repeat steps 5 to 9.
10	0	01	00	Set the data.

# 5-2. MECHANISM SECTION ADJUSTMENT

#### On the mechanism section adjustment

For detail of mechanism section adjustments, checks, and replacement of mechanism parts, refer to the separate volume "DV MECHANICAL ADJUSTMENT MANUAL VI [J Mechanism]".

**Note:** Before performing the adjustments, check the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

# 2-1. HOE TO ENTER RECORD MODE WITHOUT CASSETTE

- 1) Connect the adjustment remote commander to the LANC jack.
- Turn the HOLD switch of the adjustment remote commander to the ON position.
- 3) Close the cassette compartment without the cassette.
- Select page: 3, address: 01, and set data: 0C, and press the PAUSE button of the adjustment remote commander. (The mechanism enters the record mode automatically.)
   Note: The function buttons becomes inoperable.
- 5) To quit the record mode, select page: 3, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander. (Whenever you want to quit the record mode, be sure to quit following this procedure.)

# 2-2. HOE TO ENTER PLAYBACK MODE WITHOUT CASSETTE

- 1) Connect the adjustment remote commander to the LANC jack.
- Turn the HOLD switch of the adjustment remote commander to the ON position.
- 3) Close the cassette compartment without the cassette.
- Select page: 3, address: 01, and set data: 0B, and press the PAUSE button of the adjustment remote commander. (The mechanism enters the playback mode automatically.)
   Note: The function buttons becomes inoperable.
- 5) To quit the playback mode, select page: 3, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander. (Whenever you want to quit the playback mode, be sure to quit following this procedure.)

#### 2-3. TAPE PATH ADJUSTMENT

#### 1. Preparation for Adjustment

- Clean the tape running side (tape guide, drum, capstan shaft, pinch roller, etc.).
- 2) Connect the adjustment remote commander to the LANC jack.
- 3) Turn the HOLD switch of the adjustment remote commander to the ON position.
- Connect an oscilloscope to VC-280 board CN1002 via the CPC-8 jig (J-6082-388-A).

Channel 1: VC-280 board, CN1002 Pin (Mote) External trigger: VC-280 board, CN1002 Pin (17)

Note: Connect a 75 $\Omega$  resistor between Pins @ of CN1002 and @ (GND).

- 5) Playback the alignment tape for tracking. (XH2-1)
- 6) Select page: 3, address: 33, and set data: 08.
- 7) Select page: 3, address: 26, and set data: 31.
- Check that the oscilloscope RF waveform is normal at the entrance and exit.

If not normal, adjust according to the separate volume "DV MECHANICAL ADJUSTMENT MANUAL VI [J Mechanism]".

#### CN1002 of VC-280 board

Pin No.	Signal Name	Pin No.	Signal Name
1	N.C.	2	N.C.
3	N.C.	4	EVF VG
5	EVF VCO	6	GND
7	PANEL VG	8	PD VCO
9	H START	10	XHD/PSIG
11	PANEL COM	12	TMS (MAKER CHECK)
13	N.C.	14	N.C.
15	N.C.	16	GND
17	SWP	18	RF IN/LANC JACK IN
19	GND	20	RF MON

Table 5-2-1.

#### 2. Processing after Completing Operations:

- Connect the adjustment remote commander to the LANC jack and set the HOLD switch to the ON position.
- 2) Select page: 3, address: 26, and set data: 00.
- 3) Select page: 3, address: 33, and set data: 00.

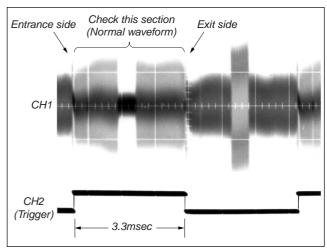


Fig. 5-2-1.

## 5-3. VIDEO SECTION ADJUSTMENTS

NTSC model: DCR-TRV16/TRV18

PAL model: DCR-TRV16E/TRV118E/TRV116E/TRV118E

#### 3-1. PREPARATIONS BEFORE ADJUSTMENTS

Use the following measuring instruments for video section adjustments.

#### 3-1-1. Equipment Required

- 1) TV monitor
- 2) Oscilloscope (dual-phenomenon, band above 30 MHz with delay mode) (Unless specified otherwise, use a 10:1 probe.)
- 3) Frequency counter
- 4) Pattern generator with video output terminal.
- 5) Digital voltmeter
- 6) Audio generator
- 7) Audio level meter
- 8) Audio distortion meter
- 9) Audio attenuator
- 10) Regulated power supply
- 11) Alignment tapes
  - Tracking standard (XH2-1)
     Parts code: 8-967-997-01
  - SW/OL standard (XH2-3)
    - Parts code: 8-967-997-11
  - Audio operation check for NTSC (XH5-3)
    - Parts code: 8-967-997-51
  - System operation check for NTSC (XH5-5)
    - Parts code: 8-967-997-61
  - Audio operation check for PAL (XH5-3P)
    - Parts code: 8-967-997-55
  - System operation check for PAL (XH5-5P)
    - Parts code: 8-967-997-66
- 12) Adjustment remote commander (J-6082-053-B)
- 13) CPC-8 jig (J-6082-388-A)
- 14) Extension cable (100P, 0.5mm) (J-6082-352-A)

For extension between the VA-117 board (CN4002) and VC-280 board (CN1007).

#### 3-1-2. Precautions on Adjusting

**Note1:** Before performing the adjustments, check the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

 The adjustments of this unit are performed in the VTR mode or camera mode.

To set to the VTR mode, set the power switch to "VCR" (or "PLAYER") or set the "Forced VTR Power ON mode" using the adjusting remote commander (Note2).

To set to the Camera mode, set the power switch to "CAMERA" or set the "Forced Camera Power ON mode" using the adjusting remote commander (Note3).

After completing adjustments, be sure to exit the "Forced VTR Power ON Mode" or "Forced Camera Power ON Mode". (Note5)

 The front panel block (Focus ring, Microphone unit., MA-409 board, FB-219 board) need not be assembled. To remove it, disconnect the following connector.

VA-117 board CN4003 (24P, 0.5mm)

3) Cabinet (R) (CK-108board, LCD block) need not be connected. But removing the cabinet (R) (removing the VC-280 board CN1005) means removing the lithium 3V power supply (CK-108 board, BT5201), data such as date, time, user-set menus will be lost. After completing adjustments, reset these data. But, the self-diagnosis data and the data on history of use (total drum rotation time etc.) will be kept even if the cabinet (R) has been removed. (Refer to "5-4.Service Mode" for the data on the history use and the self-diagnosis data.)

To remove the cabinet (R), disconnect the following connectors.

VA-117 board CN4004 (12P, 0.5mm)

VC-280 board CN1005 (28P, 0.5mm)

 The EVF block (LB-077 board) is need not be connected. To remove it, disconnect the following connector.

VA-117 board CN4201 (20P, 0.5mm)

5) The intelligent accessory shoe is need not be connected. To remove it, disconnect the following connector.

VA-117 board CN4001 (20P, 0.5mm)

 To open the VA-117 board, use the following extension cable between the VA-117 board CN4002 and VC-280 board CN1007.

J-6082-352-A (100P, 0.5mm)

 The lens block (CD-365 board) is need not be connected. To remove it, disconnect the following connectors.

VC-280 board CN1401 (16P, 0.5mm)

VC-280 board CN1201 (24P, 0.5mm)

8) By setting the "Forced VTR Power ON mode", the video section can be operate even if the control switch block (PS-CX2670) has been removed. When removing it, disconnect the following connector.

VC-280 board CN1008 (20P, 0.5mm)

**Note2:** Setting the "Forced VTR Power ON" mode (VTR mode)

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 10, set data: 02, and press the PAUSE button of the adjusting remote commander.

  The above procedure will enable the VTR power to be turned on with the control switch block (PS-CX2670 block) removed. After completing adjustments, be sure to exit the "Forced Power ON mode"

Note3: Setting the "Forced Camera Power ON" mode (Camera mode)

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 10, set data: 01, and press the PAUSE button of the adjusting remote commander.

The above procedure will enable the camera power to be turned on with the control switch block (PS-CX2670 block) removed. After completing adjustments, be sure to exit the "Forced Power ON mode".

**Note4:** Setting the "Forced Memory Power ON" mode (Memory mode)

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: D, address: 10, set data: 05, and press the PAUSE button of the adjusting remote commander.

The above procedure will enable the memory power to be turned on with the control switch block (PS-CX2670 block) removed

After completing adjustments, be sure to exit the "Forced Power ON mode".

Note5: Exiting the "Forced Power ON" mode

- 1) Select page: 0, address: 01, and set data: 01.
- Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjusting remote commander.
- 3) Select page: 0, address: 01, and set data: 00.

## 3-1-3. Adjusting Connectors

Some of the adjusting points of the video section are concentrated at VC-280 board CN1002. Connect the measuring instruments via the CPC-8 jig (J-6082-388-A). The following table lists the pin numbers and signal names of CN1002.

Pin No.	Signal Name	Pin No.	Signal Name
1	N.C.	2	N.C.
3	N.C.	4	EVF VG
5	EVF VCO	6	GND
7	PANEL VG	8	PD VCO
9	H START	10	XHD/PSIG
11	PANEL COM	12	TMS (MAKER CHECK)
13	N.C.	14	N.C.
15	N.C.	16	GND
17	SWP	18	RF IN/LANC JACK IN
19	GND	20	RF MON

Table 5-3-1.

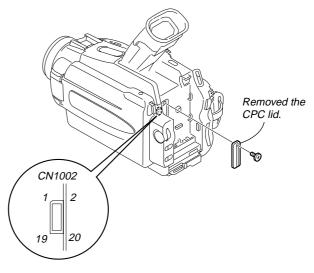


Fig. 5-3-1.

#### 3-1-4. Connecting the Equipment

Connect the measuring instruments as shown in Fig. 5-3-2, and perform the adjustments.

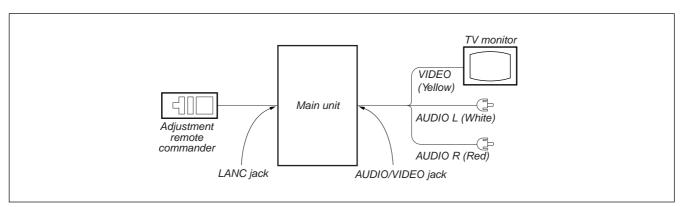


Fig. 5-3-2.

#### 3-1-5. Alignment Tapes

Use the alignment tapes shown in the following table.

Use tapes specified in the signal column of each adjustment.

Name	Use
Tracking standard (XH2-1)	Tape path adjustment
SW/OL standard (XH2-3)	Switching position adjustment
Audio operation check (XH5-3 (NTSC), XH5-3P (PAL))	Audio system adjustment
System operation check (XH5-5 (NTSC), XH5-5P (PAL))	Operation check

Fig. 5-3-3 shows the 75% color bar signals recorded on the alignment tape for Audio Operation Check.

**Note:** Measure with video terminal (Terminated at 75  $\Omega$ )

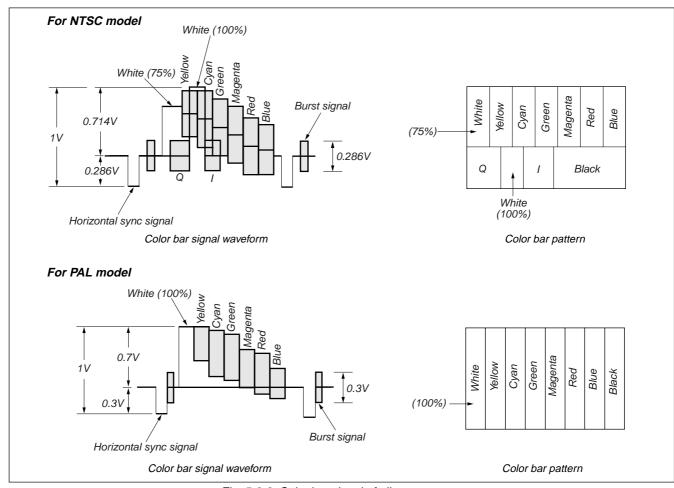


Fig. 5-3-3. Color bar signal of alignment tapes

#### 3-1-6. Input/Output Level and Impedance

Video input/output

Special stereo mini jack

Video signal: 1 Vp-p, 75  $\Omega$  unbalanced,

sync negative

S video input/output

4-pin mini DIN

Luminance signal: 1 Vp-p, 75  $\Omega$  unbalanced,

sync negative

Chrominance signal: 0.286 Vp-p, 75  $\Omega$  unbalanced (NTSC)

: 0.300 Vp-p, 75  $\Omega$  unbalanced (PAL)

Audio input/output

Special stereo mini jack Input level: 327mV

Input impedance: More than  $47k\Omega$ 

Output level: 327 mV (at load impedance 47 k $\Omega$ )

Output impedance: Below 2.2 k $\Omega$ 

#### 3-2. SYSTEM CONTROL SYSTEM ADJUSTMENT

#### 1. Initialization of 8, A, B, C, D, E, F, 1B, 1F Page Data

If the 8, A, B, C, D, E, F, 1B, 1F page data is erased due to some reason, perform "1-2. INITIALIZATION OF 8, A, B, C, D, E, F, 1B, 1F PAGE DATA" of "5-1. CAMERA SECTION ADJUSTMENT".

**Note:** When reading or writing the 1B, 1F page data, select page: 0, address: 10, and set data: 01, then select B or F page. The 1B or 1F page can be chosen by this data setting.

After reading or writing, reset the data of page: 0, address: 10 to "00".

#### 2. Serial No. Input

**Note:** Before performing the adjustments, check the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

#### 2-1. Company ID Input

Write the company ID in the EEPROM (nonvolatile memory).

Page	8
Address	8C, 8D, 8E, 8F, 90

#### Input method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Input the following data to page: 8, addresses: 8C to 90.

Note: Press the PAUSE button of the adjustment remote commander each time to set the data.

Address	Data
8C	08
8D	00
8E	46
8F	01
90	02

3) Select page: 0, address: 01, and set data: 00.

#### 2-2. Serial No. Input

Write the serial No. and model code in the EEPROM (nonvolatile memory). Convert the serial No. on the name plate from decimal to hexadecimal, and write in the EEPROM.

Page	8
Address	91, 92, 93

#### Input method:

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Read the serial No. on the name plate, and take it as D<sub>1</sub>.

Example: If the serial No. is 77881.

 $D_1 = 77881$ 

**Note:** Use six digits of the low rank when a serial No. is more than seven digits.

3) Obtain D<sub>2</sub> and H<sub>1</sub> corresponding to D<sub>1</sub> from Table 5-3-2.

Example: If D<sub>1</sub> is "77881".

 $D_2 = D_1 - 65536 = 12345$ 

 $H_1 = FE$ 

D₁ (Decimal)	D <sub>2</sub> (Decimal)	H <sub>1</sub> (Hexadecimal) (Service model code)		
000001 to 065535	$\mathbf{D}_1$	FE		
065536 to 131071	D1-65536	FE		
131072 to 196607	D <sub>1</sub> -131072	FE		

Table 5-3-2.

1) Input H<sub>1</sub> to page: 8, address: 91. (Model code input)

Example: If H1 is "FE".

Select page: 8, address: 91, set data: FE, and press the PAUSE button.

5) Obtain the maximum decimal not exceeding D<sub>2</sub> from Table 5-3-3, and take this as D<sub>3</sub>.

Example: If D<sub>2</sub> is "12345".

 $D_3 = 12288$ 

6) Obtain the hexadecimal corresponding to D<sub>3</sub> from Table 5-3-3, and take this as H<sub>3</sub>.

Example: If D<sub>3</sub> is "12288".

 $H_3 = 3000$ 

7) Obtain the difference  $D_4$  between  $D_2$  and  $D_3$ . (Decimal calculation,  $0 \le D_4 \le 255$ )

 $D_4 = D_2 - D_3$ 

Example: If D2 is "12345" and D3 is "12288".

 $D_4 = 12345 - 12288 = 57$ 

8) Convert D<sub>4</sub> to hexadecimal, and take this as H<sub>4</sub>.

(Refer to "Hexadecimal-decimal conversion table" in "5-4. Service Mode".)

Example: If D4 is "57".

 $H_4 = 39$ 

9) Input the upper 2 digits of H<sub>3</sub> to page: 8, address: 92.

Example: If H<sub>3</sub> is "3000".

Select page: 8, address: 92, set data: 30, and press the PAUSE button.

10) Input H<sub>4</sub> to page: 8, address: 93.

Example: If H<sub>4</sub> is "39".

Select page: 8, address: 93, set data: 39, and press the PAUSE button.

11) Select page: 0, address: 01, and set data: 00.

Decimal (D <sub>3</sub> )	Hexa- decimal (H <sub>3</sub> )	Decimal (D <sub>3</sub> )	Hexa- decimal (H <sub>3</sub> )	Decimal (D₃)	Hexa- decimal (H <sub>3</sub> )	Decimal (D <sub>3</sub> )	Hexa- decimal (H <sub>3</sub> )								
0	0000	8192	2000	16384	4000	24576	6000	32768	8000	40960	A000	49152	C000	57344	E000
256	0100	8448	2100	16640	4100	24832	6100	33024	8100	41216	A100	49408	C100	57600	E100
512	0200	8704	2200	16896	4200	25088	6200	33280	8200	41472	A200	49664	C200	57856	E200
768	0300	8960	2300	17152	4300	25344	6300	33536	8300	41728	A300	49920	C300	58112	E300
1024	0400	9216	2400	17408	4400	25600	6400	33792	8400	41984	A400	50176	C400	58368	E400
1280	0500	9472	2500	17664	4500	25856	6500	34048	8500	42240	A500	50432	C500	58624	E500
1536	0600	9728	2600	17920	4600	26112	6600	34304	8600	42496	A600	50688	C600	58880	E600
1792	0700	9984	2700	18176	4700	26368	6700	34560	8700	42752	A700	50944	C700	59136	E700
2048	0800	10240	2800	18432	4800	26624	6800	34816	8800	43008	A800	51200	C800	59392	E800
2304	0900	10496	2900	18688	4900	26880	6900	35072	8900	43264	A900	51456	C900	59648	E900
2560	0A00	10752	2A00	18944	4A00	27136	6A00	35328	8A00	43520	AA00	51712	CA00	59904	EA00
2816	0B00	11008	2B00	19200	4B00	27392	6B00	35584	8B00	43776	AB00	51968	CB00	60160	EB00
3072	0C00	11264	2C00	19456	4C00	27648	6C00	35840	8C00	44032	AC00	52224	CC00	60416	EC00
3328	0D00	11520	2D00	19712	4D00	27904	6D00	36096	8D00	44288	AD00	52480	CD00	60672	ED00
3584	0E00	11776	2E00	19968	4E00	28160	6E00	36352	8E00	44544	AE00	52736	CE00	60928	EE00
3840	0F00	12032	2F00	20224	4F00	28416	6F00	36608	8F00	44800	AF00	52992	CF00	61184	EF00
4096	1000	12288	3000	20480	5000	28672	7000	36864	9000	45056	B000	53248	D000	61440	F000
4352	1100	12544	3100	20736	5100	28928	7100	37120	9100	45312	B100	53504	D100	61696	F100
4608	1200	12800	3200	20992	5200	29184	7200	37376	9200	45568	B200	53760	D200	61952	F200
4864	1300	13056	3300	21248	5300	29440	7300	37632	9300	45824	B300	54016	D300	62208	F300
5120	1400	13312	3400	21504	5400	29696	7400	37888	9400	46080	B400	54272	D400	62464	F400
5376	1500	13568	3500	21760	5500	29952	7500	38144	9500	46336	B500	54528	D500	62720	F500
5632	1600	13824	3600	22016	5600	30208	7600	38400	9600	46592	B600	54784	D600	62976	F600
5888	1700	14080	3700	22272	5700	30464	7700	38656	9700	46848	B700	55040	D700	63232	F700
6144	1800	14336	3800	22528	5800	30720	7800	38912	9800	47104	B800	55296	D800	63488	F800
6400	1900	14592	3900	22784	5900	30976	7900	39168	9900	47360	B900	55552	D900	63744	F900
6656	1A00	14848	3A00	23040	5A00	31232	7A00	39424	9A00	47616	BA00	55808	DA00	64000	FA00
6912	1B00	15104	3B00	23296	5B00	31488	7B00	39680	9B00	47872	BB00	56064	DB00	64256	FB00
7168	1C00	15360	3C00	23552	5C00	31744	7C00	39936	9C00	48128	BC00	56320	DC00	64512	FC00
7424	1D00	15616	3D00	23808	5D00	32000	7D00	40192	9D00	48384	BD00	56576	DD00	64768	FD00
7680	1E00	15872	3E00	24064	5E00	32256	7E00	40448	9E00	48640	BE00	56832	DE00	65024	FE00
7936	1F00	16128	3F00	24320	5F00	32512	7F00	40704	9F00	48896	BF00	57088	DF00	65280	FF00

Table 5-3-3.

#### 3-3. SERVO AND RF SYSTEM ADJUSTMENT

Before perform the servo and RF system adjustments, check that the specified value of "36 MHz Origin Oscillation Adjustment" of "CAMERA SYSTEM ADJUSTMENT" is satisfied.

And check that the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

#### **Adjusting Procedure:**

- CAP FG duty adjustment
- PLL fo & LPF fo adjustment
- Switching position adjustment 3.
- AGC center level and APC & AEQ adjustment 4.
- 5. PLL fo & LPF fo fine adjustment

#### 1. Cap FG Duty Adjustment (VC-280 Board) RadarW



Set the Cap FG signal duty cycle to 50% to establish an appropriate capstan servo. If deviated, the uneven rotation of capstan and noise can occur.

Measurement Point	Display data of page: 3, address: 02, 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	С
Adjustment Address	16
Specified Value	Data of page: 3, address: 02 is "00".
	Data of page: 3, address: 03 is "00".

Note1: The data of page: 0, address: 10 must be "00".

#### Adjusting method:

Order	Page	Address	Data	Procedure
1				Close the cassette compartment without inserting a cassette.
2	0	01	01	Set the data.
3	3	01	1B	Set the data, and press PAUSE button.
4	3	02		Check that the data changes in the following order. "1B" → "2B" → "00"
5	3	03		Check that the data is "00". (Note2)
6	0	01	00	Set the data.

Note2: If the data is "01", adjustment has errors or the mechanism deck is defective.

## 2. PLL fo & LPF fo Adjustment (VC-280 Board) RadarW



Mode	VTR stop
Measurement Point	Display data of page: 3, address: 02, 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	С
Adjustment Address	1F, 20, 22, 29
Specified Value	Data of page: 3, address: 02 is "00". Data of page: 3, address: 03 is "00".

Note1: The data of page: 0, address: 10 must be "00".

#### Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	C	21	DC	Set the data, and press PAUSE button.
3	3	01	30	Set the data, and press PAUSE button.
4	3	02		Check that the data changes to "00" with in 5 sec. (Note2)
5	3	03		Check that the data is "00". (Note2)
6	0	01	00	Set the data.

Note2: If it isn't satisfied, select page: C, address: 21, set the following data, and press the PAUSE button, and repeat steps 3 to 5.

	Setting data
When the data of page: C, address: 21 is "DC".	E0
When the data of page: C, address: 21 is "E0".	D8
When the data of page: C, address: 21 is "D8".	E4
When the data of page: C, address: 21 is "E4"	D4

There are errors when it isn't satisfied even if the above treatment is done.

If bit2, bit3, bit4, bit5 or bit 6 of the data of page: 3, address: 03 is "1", there are errors. For the error contents, see the following table. (For the bit values, refer to "5-4. SERVICE MODE", "4-3. 3. Bit value discrimination".)

Bit value of page: 3, address: 03 data	Error contents
bit $2 = 1$ or bit $3 = 1$	PLL fo fine adjustment is defective
bit $4 = 1$ or bit $5 = 1$	PLL fo adjustment is defective
bit 6 = 1	LPF fo is defective

#### 3. Switching Position Adjustment (VC-280 Board) RadarW

To obtain normal playback waveform output during the Digital8 playback mode, adjust the switching position.

Mode	VTR playback
Signal	SW/OL reference tape (XH2-3)
Measurement Point	Display data of page: 3, address: 02, 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	С
Adjustment Address	10, 11, 12, 13
Specified Value	Data of page: 3, address: 02 is "00".
	Data of page: 3, address: 03 is "00".

Note1: The data of page: 0, address: 10 must be "00".

#### Adjusting method:

Order	Page	Address	Data	Procedure
1				Insert the SW/OL reference tape and enter the VTR STOP mode.
2	0	01	01	Set the data.
3	С	10	EE	Set the data, and press PAUSE button.
4	3	21		Check that the data is "02". (Note2)
5	3	01	0D	Set the data, and press PAUSE button.
6	3	02		Check that the data changes to "00".
7	3	03		Check that the data is "00". (Note3)
8	0	01	00	Set the data.

**Note2:** If the data of page: 3, address: 21 is "72", the tape top being played. After playing the tape for 1 to 2 seconds, stop it, perform step 5 and higher.

If the data of page: 3, address: 21 is "62", the tape end being played. After rewinding the tape, perform step 5 and higher.

**Note3:** If bit 0 of the data is "1", the EVEN channel is defective. If bit 1 is "1", the ODD channel is defective. Contents of the defect is written into page: C, addresses: 10 and 12. See the following table. (For the bit values, refer to "5-4. SERVICE MODE", "4-3. 3. Bit value discrimination".) If bit 3 of the data is "1", the tape end being played, so rewind the tape and perform the adjustment again.

#### When the EVEN channel is defective

Data of page: C, address: 10	Contents of defect
EE	Writing into EEPROM (IC2502) is defective
E8	Adjustment data is out of range
E7	No data is returned from IC2101

#### When the ODD channel is defective

Data of page: C, address: 12	Contents of defect
EE	Writing into EEPROM (IC2502) is defective
E8	Adjustment data is out of range
E7	No data is returned from IC2101

### 4. AGC Center Level and APC & AEQ Adjustment

**Note:** The data of page: 0, address: 10 must be "00".

#### 4-1. Preparations before adjustments

Mode	Camera recording
Subject	Arbitrary

### Adjusting method:

Order	Page	Address	Data	Procedure
1	7	30	80	Set the data.
2				Record the camera signal for
				three minutes.

#### 4-2. AGC Center Level Adjustment (VC-280 Board) RadarW

Mode	Playback
Signal	Recorded signal at "Preparations
	before adjustments"
Measurement Point	Pin @ of CN1002 (RF MON) (Note1)
	Ext. trigger: Pin ① of CN1002 (SWP)
Measuring Instrument	Oscilloscope
Adjustment Page	С
Adjustment Address	1E
Specified Value	Data of page: 3, address: 02 is "00".
	Data of page: 3, address: 03 is "00".

**Note1:** Connect a 75 $\Omega$  resistor between Pin 20 and Pin (9) (GND) of CN1002.

75 $\Omega$  resistor (Parts code: 1-247-804-11)

#### Adjusting method:

Order	Page	Address	Data	Procedure
1				Playback the recorded signal at "Preparations before adjustments"
2	0	01	01	Set the data.
3	3	33	08	Set the data.
4				Confirm that the playback RF signal is stable. (Fig. 5-3-4.)
5	3	01	23	Set the data, and press PAUSE button.
6	3	02		Check that the data is "00".
7	3	03		Check that the data is "00". (Note2)
8				Perform "APC & AEQ Adjustment".

**Note2:** If the data of page: 3, address: 03 is other than "00", adjustment has errors. (Take an appropriate remedial measures according to the errors referring to the following table.)

Data	Contents of defect
20	Perform re-adjustment. (Note 3)
30	The machine is defective
40	Perform re-adjustment. (Note 3)
50	The machine is defective

**Note3:** If this data is displayed twice successively, the machine is defective.

#### 4-3. APC & AEQ Adjustment (VC-280 Board)

RadarW
--------

Mode	Playback
Signal	Recorded signal at "Preparations before adjustments"
Measurement Point	Pin @ of CN1002 (RF MON) (Note1) Ext. trigger: Pin @ of CN1002 (SWP)
Measuring Instrument	Oscilloscope
Adjustment Page	С
Adjustment Address	18, 19, 1B, 1C, 21, 2C
Specified Value	Data of page: 3, address: 02 is "00". Data of page: 3, address: 03 is "00".

**Note1:** Connect a  $75\Omega$  resistor between Pin @ and Pin (9) (GND) of

CN1002.

75Ω resistor (Parts code: 1-247-804-11)

**Note2:** The "AGC Center Level Adjustment" must have already been completed before starting this adjustment.

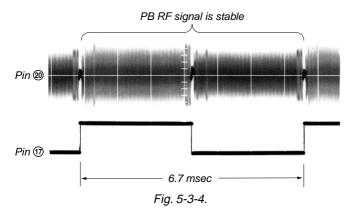
#### Adjusting method:

Order	Page	Address	Data	Procedure
1				Playback the recorded signal at "Preparations before adjustments"
2	0	01	01	Set the data.
3	3	33	08	Set the data.
4				Confirm that the playback RF signal is stable. (Fig. 5-3-4.)
5	3	01	07	Set the data, and press PAUSE button.
6	3	02		Check that the data changes from "07" to "00" in about 20 seconds after pressing PAUSE button.
7	3	03		Check that the data is "00". (Note3)
8				Perform "Processing after Completing Adjustments".

**Note3:** If the data is other than "00", adjustment has errors. Take an appropriate remedial measures according to the errors referring to the following table.

Data	Contents of defect
20	Perform re-adjustment. (Note 4)
30	The machine is defective
50	Perform re-adjustment. (Note 4)
60	The machine is defective
80	The machine is defective

**Note4:** If this data is displayed twice successively, the machine is defective.



4-4. Processing after Completing Adjustments

Order	Page	Address	Data	Procedure
1	7	30	00	Set the data.
2	3	33	00	Set the data.
3	0	01	00	Set the data.

## 5. PLL fo & LPF fo Fine Adjustment (VC-280 Board) RadarW

Mode	VTR stop
Signal	Arbitrary
Measurement Point	Display data of page: 3, address: 02, 03
Measuring Instrument	Adjustment remote commander
Adjustment Page	С
Adjustment Address	1F, 20, 22, 29
Specified Value	Data of page: 3, address: 02 is "00".  Data of page: 3, address: 03 is "00".

**Note1:** The data of page: 0, address: 10 must be "00".

## Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	3	01	30	Set the data, and press PAUSE button.
3	3	02		Check that the data changes to "00" with in 5 sec. (Note2)
4	3	03		Check that the data is "00". (Note3)
5	0	01	00	Set the data.

**Note2:** If it isn't satisfied, there are errors.

**Note3:** If the data of page: 3, address: 03 is other than "00", there are errors. For the error contents, see the following table. (For the bit values, refer to "5-4. SERVICE MODE", "4-3. 3. Bit value discrimination".)

Bit value of page: 3, address: 03	Error contents
bit $2 = 1$ or bit $3 = 1$	PLL fo fine adjustment is defective
bit $4 = 1$ or bit $5 = 1$	PLL fo adjustment is defective
bit 6 = 1	LPF fo is defective

#### 3-4. VIDEO SYSTEM ADJUSTMENTS

Note1: Before perform the video system adjustments, check that the specified value of "36 MHz Origin Oscillation Adjustment" of "CAMERA SYSTEM ADJUSTMENT" is satisfied.

And check that the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

Note2: NTSC model: DCR-TRV16/TRV18

PAL model: DCR-TRV16E/TRV18E/TRV116E/TRV118E

### 1. Chroma BPF fo Adjustment (VA-117 Board)

Set the center frequency of IC4101 chroma band-pass filter.

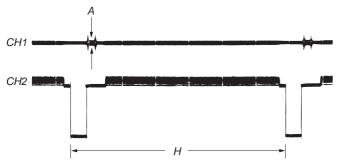
Mode	Camera
Subject	Arbitrary
Measurement Point	CH1: Chroma signal terminal of S VIDEO jack (75Ω terminated) CH2: Y signal terminal of S VIDEO jack (75Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	С
Adjustment Address	28
Specified Value	A = 100mVp-p or less B = 200mVp-p or more

**Note:** The data of page: 0, address: 10 must be "00".

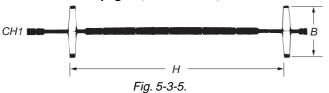
#### Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2				Check that the burst signal (B) is output to the chroma signal terminal of S VIDEO jack.
3	3	0C	04	Set the data, and press PAUSE button.
4	С	28		Change the data for minimum amplitude of the burst signal level (A). (The data should be "00" to "0F".)
5	C	28		Press PAUSE button.
6	3	0C	00	Set the data, and press PAUSE button.
7				Check that the burst signal level (B) satisfies the specified value.
8	0	01	00	Set the data.

## When the data of page: 3, address: 0C, is 04:



#### When the data of page: 3, address: 0C, is 00:



#### 2. S VIDEO OUT Y Level Adjustment (VC-280 Board)

Mode	Camera
Subject	Arbitrary
Measurement Point	Y signal terminal of S VIDEO jack (75 $\Omega$ terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	С
Adjustment Address	25
Specified Value	$A = 1000 \pm 14 \text{mV}$

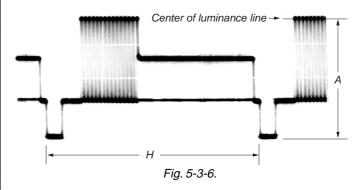
**Note:** The data of page: 0, address: 10 must be "00".

**Switch setting:** 

DEMO MODE (Menu setting) ......OFF

#### Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	3	0C	02	Set the data, and press PAUSE button.
3	С	25		Change the data and set the Y signal level (A) to the specified value.
4	С	25		Press PAUSE button.
5	3	0C	00	Set the data, and press PAUSE button.
6	0	01	00	Set the data.



# 3. S VIDEO OUT Chroma Level Adjustment (VC-280 Board)

Mode	Camera
Subject	Arbitrary
Measurement Point	Chroma signal terminal of S VIDEO
	jack (75Ω terminated)
	External trigger: Y signal terminal of
	S VIDEO jack
Measuring Instrument	Oscilloscope
Adjustment Page	С
Adjustment Address	26, 27
Specified Value	Cr level: $A = 714 \pm 14 \text{mV (NTSC)}$
	$A = 700 \pm 14 \text{mV (PAL)}$
	Cb level:B = $714 \pm 14$ mV (NTSC)
	$B = 700 \pm 14 \text{mV (PAL)}$
	Burst level: $C = 286 \pm 6 \text{mV (NTSC)}$
	$C = 300 \pm 6 \text{mV (PAL)}$

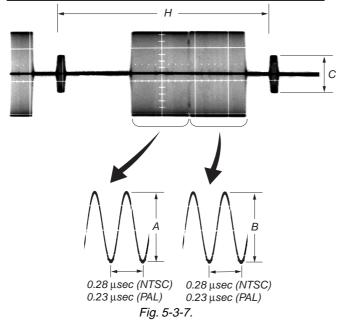
**Note:** The data of page: 0, address: 10 must be "00".

#### **Switch setting:**

DEMO MODE (Menu setting) ......OFF

## Adjusting method:

Order	Page	Address	Data	Procedure
1	0	01	01	Set the data.
2	3	0C	02	Set the data, and press PAUSE button.
3	С	26		Change the data and set the Cr signal level (A) to the specified value.
4	С	26		Press PAUSE button.
5	С	27		Change the data and set the Cb signal level (B) to the specified value.
6	C	27		Press PAUSE button.
7				Check that the burst signal level (C) is satisfied the specified value.
8	3	0C	00	Set the data, and press PAUSE button.
9	0	01	00	Set the data.



## 4. VIDEO OUT Y, Chroma Level Check (VC-280 Board)

Mode	Camera
Subject	Arbitrary
Measurement Point	Video terminal of AUDIO VIDEO jack (75 $\Omega$ terminated)
Measuring Instrument	Oscilloscope
Specified Value	Sync level: $A = 286 \pm 18 \text{mV (NTSC)}$ $A = 300 \pm 18 \text{mV (PAL)}$ Burst level: $B = 286 \pm 18 \text{(mV (NTSC)}$ $B = 300 \pm 18 \text{mV (PAL)}$

**Note:** The data of page: 0, address: 10 must be "00".

#### **Switch setting:**

DEMO MODE (Menu setting) ......OFF

## Adjusting method:

Order	Page	Address	Data	Procedure
1	3	0C	02	Set the data, and press PAUSE button.
2				Check that the sync signal level (A) satisfies the specified value.
3				Check that the burst signal level (B) satisfies the specified value.
4	3	0C	00	Set the data, and press PAUSE button.

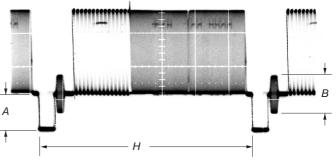


Fig. 5-3-8.

#### 3-5. AUDIO SYSTEM ADJUSTMENTS

#### [Connection of Audio System Measuring Devices]

Connect the audio system measuring devices as shown in Fig. 5-3-9.

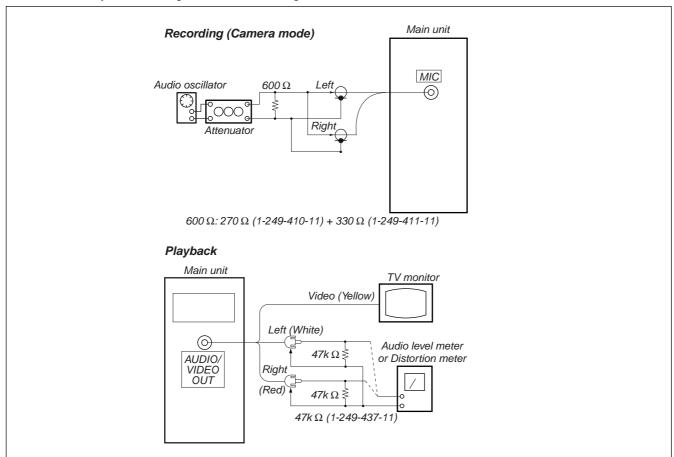


Fig. 5-3-9.

#### 1. Playback Level Check

Mode	VTR playback
	VIR playback
Signal	Alignment tape:
	For audio operation check
	(XH5-3 (NTSC))
	(XH5-3P (PAL))
Measurement Point	Audio left or right terminal of AUDIO
	VIDEO jack
Measuring Instrument	Audio level meter and frequency
	counter
Specified Value	32 kHz mode: 1 kHz, $+3.0 \pm 2.0$ dBs
-	48 kHz mode: 1 kHz, $+3.0 \pm 2.0$ dBs
	44.1 kHz mode:
	The 7.35kHz signal level during EMP
	OFF is $+2.0 \pm 2.0$ dBs.
	The 7.35kHz signal level during EMP
	ON is $-6 \pm 2$ dB from the signal level
	during EMP OFF.

#### **Checking Method:**

1) Check that the playback signal level is the specified value.

#### 2. Overall Level Characteristics Check

Mode	Camera recording and playback
Signal	400Hz, -66 dBs signal: MIC jack left and right
Measurement Point	Audio left or right terminal of AUDIO VIDEO jack
Measuring Instrument	Audio level meter
Specified Value	$-7.5 \pm 3.0$ dBs

#### **Checking Method:**

- 1) Input the 400Hz, -66dBs signal in the MIC jack.
- 2) Record in the camera mode.
- 3) Playback the recorded section.
- 4) Check that the 400Hz signal level is the specified value.

### 3. Overall Distortion Check

Mode	Camera recording and playback
Signal	400Hz, -66dBs signal: MIC jack left and right
Measurement Point	Audio left or right terminal of AUDIO VIDEO jack
Measuring Instrument	Audio distortion meter
Specified Value	Below 0.4% (200Hz to 6kHz BPF ON)

#### **Checking Method:**

- 1) Input the 400Hz, -66dBs signal in the MIC jack.
- 2) Record in the camera mode.
- 3) Playback the recorded section.
- 4) Check that the distortion is the specified value.

#### 4. Overall Noise Level Check

Mode	Camera recording and playback
Signal	No signal: Insert a shorting plug in the MIC jack
Measurement Point	Audio left or right terminal of AUDIO VIDEO jack
Measuring Instrument	Audio level meter
Specified Value	Below –45dBs (IHF-A filter ON, 20kHz LPF ON)

#### **Checking Method:**

- 1) Insert a shorting plug in the MIC jack.
- 2) Record in the camera mode.
- 3) Playback the recorded section.
- 4) Check that the noise level is the specified value.

#### 5. Overall Separation Check

Mode	Camera recording and playback
Signal	400Hz, -66dBs signal: MIC jack <right> [left] (Connect the MIC jack <left> [right] to GND)</left></right>
Measurement Point	Audio <left> [right] terminal of AUDIO VIDEO jack</left>
Measuring Instrument	Audio level meter
Specified Value	Below –40dBs (IHF-A filter ON)

<>: Left channel check

[ ]: Right channel check

### **Checking Method:**

- 1) Input the 400Hz, -66dBs signal in the <right> [left] terminal of the MIC jack only.
- 2) Record in the camera mode.
- 3) Playback the recorded section.
- 4) Check that the signal level of the audio <left> [right] terminal is the specified value.

#### 5-4. SERVICE MODE

#### 4-1. ADJUSTMENT REMOTE COMMANDER

The adjustment remote commander is used for changing the calculation coefficient in signal processing, EVR data, etc. The adjustment remote commander performs bi-directional communication with the unit using the remote commander signal line (LANC). The resultant data of this bi-directional communication is written in the non-volatile memory.

#### 1. Using the adjustment remote commander

- Connect the adjustment remote commander to the LANC terminal.
- Set the HOLD switch of the adjustment remote commander to "HOLD" (SERVICE position). If it has been properly connected, the LCD on the adjustment remote commander will display as shown in Fig. 5-4-1.

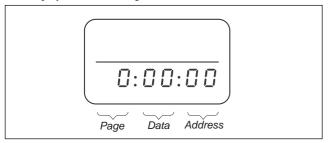


Fig. 5-4-1

- 3) Operate the adjustment remote commander as follows.
  - · Changing the page

The page increases when the EDIT SEARCH+ button is pressed, and decreases when the EDIT SEARCH- button is pressed. There are altogether 18 pages, from 0 to F, 1B, 1F. (Note)

Hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A	В	С	D	Е	F
LCD Display		1	2	3	Ч	5	5	7	8	9	Я	Ь	C	Д	Ε	F
Decimal notation conversion value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

#### · Changing the address

The address increases when the FF ( $\blacktriangleright \blacktriangleright$ ) button is pressed, and decreases when the REW ( $\blacktriangleleft \blacktriangleleft$ ) button is pressed. There are altogether 256 addresses, from 00 to FF.

- Changing the data (Data setting)
   The data increases when the PLAY (►) button is pressed, and decreases when the STOP (■) button is pressed. There are altogether 256 data, from 00 to FF.
- Writing the adjustment data

  The PAUSE button must be pressed to write the adjustment data (8, A, B, C, D, E, F, 1B, 1F page) in the nonvolatile memory. (The new adjusting data will not be recorded in the nonvolatile memory if this step is not performed.)
- After completing all adjustments, turn off the main power supply once.

Note: When reading or writing the 1B, 1F page data, select page: 0, address: 10, and set data: 01, then select B or F page. The 1B or 1F page can be chosen by this data setting.

After reading or writing, reset the data of page: 0, address: 10 to "00".

## 2. Precautions upon using the adjustment remote commander

Mishandling of the adjustment remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

#### 4-2. DATA PROCESS

The calculation of the DDS display and the adjustment remote commander display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Indicates the hexadecimal-decimal conversion table.

He	exadecimal-decimal Conversion Table 2																
	Lower digit of hexadecimal  Upper digit of hexadecimal	0	1	2	3	4	5	6	7	8	9	A ( <i>P</i> )	B ( <u>b</u> )	C (c)	(권) D	E (E)	F (F)
	0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
	2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
	3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
	4	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
	5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
	6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
	7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
	8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
	9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
	A (月)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
$\bigcirc$	В (Ы)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
	C (_)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
	D (占)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
	E ( <i>E</i> )	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
	F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

 $\textbf{Note:} \quad \text{The characters shown in the parenthesis (\ ) shown the display on the adjustment remote commander.}$ 

(**Example**) If the DDS display or the adjustment remote commander shows BD (ロロ);

Because the upper digit of the adjustment number is B ( $\frac{1}{2}$ ), and the lower digit is D ( $\frac{1}{2}$ ), the meeting point "189" of ① and ② in the above table is the corresponding decimal number.

Table. 5-4-1.

#### 4-3. SERVICE MODE

**Note:** Before performing the adjustments, check the data of page: 0, address: 10 is "00". If not, set data: 00 to this address.

#### 1. Setting the Test Mode

Page D	Address 10
--------	------------

Data	Function
00	Normal
01	Forced camera power ON
02	Forced VTR power ON
03	Forced camera + VTR power ON
05	Forced memory power ON

- Before setting the data, select page: 0, address: 01, and set data:
- For page D, the data set is recorded in the non-volatile memory by pressing the PAUSE button of the adjustment remote commander. In this case, take note that the test mode will not be exited even when the main power is turned off.
- After completing adjustments/repairs, be sure to return the data
  of this address to 00, and press the PAUSE button of the adjustment
  remote commander.

Select page: 0, address: 01, and set data: 00.

#### 2. Emergence Memory Address

Page C	Address F4 to FF
1.0	

Address	Contents
F4	EMG code when first error occurs
F6	Upper: MSW code when shift starts when first
	Lower: MSW code when first error occurs
F7	Lower: MSW code to be moved when first error occurs
F8	EMG code when second error occurs
FA	Upper: MSW code when shift starts when second error occurs Lower: MSW code when second error occurs
FB	Lower: MSW code to be moved when second error occurs
FC	EMG code when last error occurs
FE	Upper: MSW code when shift starts when last error occurs Lower: MSW code when last error occurs
FF	Lower: MSW code to be moved when last error occurs

When no error occurs in this unit, data "00" is written in the above addresses (F4 to FF). when first error occurs in the unit, the data corresponding to the error is written in the first emergency address (F4 to F7). In the same way, when the second error occurs, the data corresponding to the error is written in the second emergency address (F8 to FB). Finally, when the last error occurs, the data corresponding to the error is written in the last emergency address (FC to FF).

**Note:** After completing adjustments, be sure to initialize the data of addresses F4 to FF to "00".

## **Initializing method:**

- 1) Select page: 0, address: 01, and set data: 01.
- 2) Select page: 3, address: 01, set data: 37, and press the PAUSE button.
- 3) Select page: 0, address: 01, and set data: 00.

#### 2-1. EMG Code (Emergency Code)

Codes corresponding to the errors which occur are written in addresses F4, F8 and FC. The type of error indicated by the code are shown in the following table.

Code	Emergency Type
00	No error
10	Loading motor emergency during loading
11	Loading motor emergency during unloading
22	T reel emergency during normal rotation
23	S reel emergency during normal rotation
24	T reel emergency (Short circuit between S reel terminal and T reel terminal)
30	FG emergency at the start up of the capstan
40	FG emergency at the start up of the drum
42	FG emergency during normal rotation of the drum

#### 2-2. MSW Code

## MSW when errors occur:

Information on MSW (mode SW) when errors occur

## $\boldsymbol{MSW}$ when movement starts:

Information on MSW when movements starts when the mechanism position is moved (When the L motor is moved)

#### MSW of target of movement:

Information on target MSW of movement when the mechanism position is moved

#### Mechanical Position

moona	ou		0								
$\leftarrow \mathit{UNL}$	OAD								L	$OAD \rightarrow$	
EJ	BL	ULE	BL	SR	BL	GL	BL	STOP	BL	R/P	
0	_	_			_		1	0	_	0	$\leftarrow$ A (MSB)
0	_	0	_	0	_		_	_	_	_	← B
	_	_	_	0	_	0	_	0	_	_	$\leftarrow C$
0	0	0	0	0	0	0	0	0	0	0	$\leftarrow$ D (LSB) (Fixed at "0")
¦ II	Ш	II	II	¦ II	H	l II	Ш	II	Ш	II	l I
<u>ا</u> ۷	Ш	$\triangleright$	ш	00	ш	C	Ш	4	Ш	6	
! !	 		 		 	 	 		 		
 	l		LS d	chassis m	oven	nent sectio	on		l		
1	1 1						_ :	1		. !	
! 	 !							 	 		! 
$\longleftrightarrow$	ı						i	l	ı i	$\longleftrightarrow$	ļ.
Lock released Pinch roller pressing									essing		

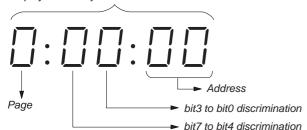
Lock released						
Cassette compartment						

Position	Code	Contents
EJ	2	Position at which the cassette component lock is released, at the farthest unload side mechanically at which the mechanism can move no further in the UNLOAD direction.
BL	Е	BLANK code, at the boundary between codes.
ULE	A	EJECT completion position. when the cassette is ejected, the mechanism will stop at this position. Cassette IN standby. The guide will start protruding out as the mechanism moves towards the LOAD position.
SR	8	Position at which it is possible to release the S ratchet.
GL	С	Guide loading are performed here.
STOP	4	Stop position in the loading state. The pinch roller separates, the tension regulator returns, and the brake is imposed on both reels.
R/P	6	PB, REC, CUE, REVIEW, PAUSE positions. When pinch roller is pressed, and the tension regulator is ON, the mechanism is operating at this position in modes in which normal images are shown.
NULL	0	Code not existing in the MD. Default value.
	F	Status before finding any mechanism position.

#### 3. Bit value discrimination

Bit values must be discriminated using the display data of the adjustment remote commander for following items. Use the table below to discriminate if the bit value is "1" or "0".

Display on the adjustment remote commander



	Display on the		Bit values				
	adjustment	bit3	bit2	bit1	bit0		
	remote	or	or	or	or		
	commander	bit7	bit6	bit5	bit4		
	0	0	0	0	0		
	1	0	0	0	1		
	2	0	0	1	0		
	3	0	0	1	1		
	4	0	1	0	0		
	5	0	1	0	1		
	6	0	1	1	0		
	7	0	1	1	1		
A	8	1	0	0	0		
	9	1	0	0	1		
	A (月)	1	0	1	0		
	В (Ь)	1	0	1	1		
	C ( <u>r</u> )	1	1	0	0		
	D (प)	1	1	0	1		
$^{\odot}$	E ( <i>E</i> )	1	1	1	0		
	F (F)	1	1	1	1		

**Example:** If "8E" is displayed on the adjustment remote commander, the bit values for bit7 to bit4 are shown in the (A) column, and the bit values for bit3 to bit0 are shown in the (B) column.

#### 4. Switch check (1)

Page 7	Address 0E

Note: The data of page: 0, address: 10 must be "00".

Bit	Function	When bit value=1	When bit value=0
0	POWER SW (VTR MODE SW) (PS-CX2670 block S001)	ON (VCR/PLAYER)	OFF
1	POWER SW (CAM MODE SW) (PS-CX2670 block S001)	ON (CAMERA)	OFF
2	START/STOP SW (PS-CX2670 block S002)	ON	OFF
3	EJECT SW (FP-443 flexible S201)	ON	OFF
4	CC DOWN SW (Mechanism chassis)	ON (DOWN)	OFF (UP)
5	PHOTO FREEZE SW (PS-CX2670 block S071)	ON	OFF
6	POWER SW (PHOTO STBY SW) (PS-CX2670 block S001)	ON (MEMORY)	OFF
7			

#### Using method:

- 1) Select page: 7, address: 0E.
- By discriminating the bit value of display data, the state of the switch can be discriminated.

#### 5. Switch check (2)

Page 7	Address 0C

**Note:** The data of page: 0, address: 10 must be "00".

Bit	Function	When bit value=1	When bit value=0
1	MIC jack (MA-409 board J5901)	Used	Not used
2	AUDIO/VIDEO jack (JK-217 board J5302)	Used	Not used
3	S VIDEO jack (JK-217 board J5302)	Used	Not used

#### Using method:

- 1) Select page: 7, address: 0C.
- By discriminating the bit value of display data, the state of the switch can be discriminated.

#### 6. Switch check (3)

Page 3	Address 61
--------	------------

**Note:** The data of page: 0, address: 10 must be "00".

Г	Bit	Function	When bit value=1	When bit value=0
	6	HEADPHONS jack (MA-409 board J5902)	Used	Not used

#### **Using method:**

1) Select page: 3, address: 61.

2) By discriminating the bit value of display data, the state of the switch can be discriminated.

#### 7. Switch check (4)

Page 2	Address 60 to 66

**Note:** The data of page: 0, address: 10 must be "00".

## Using method:

1) Select page: 2, address: 60 to 66.

2) By discriminating the display data, the pressed key can be discriminated.

	Data							
Address	00	19	32	4E	6F	96	C1	E8
	(00 to 0C)	(0D to 24)	(25 to 3F)	(40 to 5D)	(5E to 81)	(82 to AA)	(AB to D7)	(D8 to FF)
60 (KEY AD0) (IC3101 <b>(9)</b> )	PHOTO (PHOTO REC) (PS-CX2670) (S071)	EDIT SEARCH + (FP-443) (S202)	EDIT SEARCH – (FP-443) (S203)					No key input
61 (KEY AD1) (IC3101 <b>®</b> )	MPEG PLAY (SH-CX2670) (S101) *1	MEMORY PLAY (SH-CX2670) (S102) *1	MEMORY INDEX (SH-CX2670) (S107) *1	MEMORY DELETE (SH-CX2670) (S112) *1	MEMORY MIX (SH-CX2670) (S113) *1	MEMORY + (SH-CX2670) (S108) *1	MEMORY – (SH-CX2670) (S103) *1	No key input
62 (KEY AD2) (IC3101 <b>(6)</b> )	PB ZOOM (SH-CX2670) (S114)	MENU (SH-CX2670) (S115)	AUDIO DUB (SH-CX2670) (S116)	BACK LIGHT (KP-CX2670) (S100)	EXPOSURE (KP-CX2670) (S101)	PANEL REVERSE (FP-309)		PANEL NORMAL (FP-309)
63	REC	VOL +	END SEARCH	DISPLAY	VOL –	PANEL CLOSE		PANEL OPEN
(KEY AD3)	(SH-CX2670)	(SH-CX2670)	(SH-CX2670)	(SH-CX2670)	(SH-CX2670)	(CK-108)		(CK-108)
(IC3101 <b>65</b> )	(S106,111)	(S110)	(S109)	(S104)	(S105)	(S5207)		(S5207)
64 (KEY AD4) (IC3101 <b>6</b> 6)	STOP (CK-108) (S5201)	REW (CK-108) (S5202)	PLAY (CK-108) (S5204)	FF (CK-108) (S5205)	PAUSE (CK-108) (S5206)	EXECUTE (KP-CX2670) (S103)		No key input
65 (KEY AD5) (IC3101 <b>6</b> ))	COLOR SLOW S/ SUPER NS (JK-218) (S5351)							No key input
66 (KEY AD6) (IC3101 <b>®</b> )	FADER (FP-444) (S301)	FOCUS (INFINITY) (FP-444) (S302)	FOCUS (AUTO/MANUAL) (FP-444) (S302)					No key input

<sup>\*1:</sup> DCR-TRV18/TRV18E/TRV118E

## 8. Record of Use check (1)

Page 7	Address A7 to A9
--------	------------------

Note1: When replacing the drum assembly or the mechanism deck, initialize the data of address: A7 to A9.

Note2: This data will be kept even if the lithium battery (CK-108 board BT5201 of the cabinet (R) assembly) is removed.

**Note3:** The data of page: 0, address: 10 must be "00".

Address	Function		Remarks
A7		Hour (H)	100000th place digit and 10000th place digit of counted time
A8	Drum rotation counted time (BCD code)	Hour (M)	1000th place digit and 100th place digit of counted time
A9		Hour (L)	10th place digit and 1st place digit of counted time

#### Using method:

1) The record of use data is displayed at addresses: A7 to A9.

#### **Initializing method:**

- 1) Select page: 7, address: 00, and set data: 71.
- 2) Select page: 7, address: 01, set data: 71 and press the PAUSE button.
- 3) Check that the data of page: 7, address: 02 is "00".

#### 9. Record of Use check (2)

Page 7	Address C8 to CD

Note1: This data will be kept even if the lithium battery (CK-108 board BT5201 of the cabinet (R) assembly) is removed.

**Note2:** The data of page: 0, address: 10 must be "00".

Address	Function		Remarks
C8		Year	
C9	User initial power on date (BCD code)	Month	After setting the clock, set the date of power on next.
CA		Day	
СВ	Final condensation occurrence date	Year	
CC	(BCD code)	Month	
CD	(BCD code)	Day	

#### Using method:

1) The record of use data is displayed at addresses: C8 to CD.

#### 10. Record of Self-diagnosis check

	9
Page 7	Address B0 to C6

**Note1:** This data will be kept even if the lithium battery (CK-108 board

BT5201 of the cabinet (R) assembly) is removed. **Note2:** The data of page: 0, address: 10 must be "00".

Address	Self-diagnosis code
В0	"Repaired by" code (Occurred 1st time) *1
B1	"Block function" code (Occurred 1st time)
B2	"Detailed" code (Occurred 1st time)
B4	"Repaired by" code (Occurred 2nd time) *1
B5	"Block function" code (Occurred 2nd time)
B6	"Detailed" code (Occurred 2nd time)
B8	"Repaired by" code (Occurred 3rd time) *1
B9	"Block function" code (Occurred 3rd time)
BA	"Detailed" code (Occurred 3rd time)
BC	"Repaired by" code (Occurred 4th time) *1
BD	"Block function" code (Occurred 4th time)
BE	"Detailed" code (Occurred 4th time)
C0	"Repaired by" code (Occurred 5th time) *1
C1	"Block function" code (Occurred 5th time)
C2	"Detailed" code (Occurred 5th time)
C4	"Repaired by" code (Occurred the last time) *1
C5	"Block function" code (Occurred the last time)
C6	"Detailed" code (Occurred the last time)

### \*1: "01" $\rightarrow$ "C", "03" $\rightarrow$ "E"

## Using method:

 The past self-diagnosis codes are displayed at addresses: BC to C6. Refer to "SELF-DIAGNOSIS FUNCTION" for detail of the self-diagnosis code.



# SECTION 6 REPAIR PARTS LIST

#### 6-1. EXPLODED VIEWS

NOTE:

 -XX, -X mean standardized parts, so they may have some differences from the original one.

 Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

• The mechanical parts with no reference number in the exploded views are not supplied.

· Abbreviation

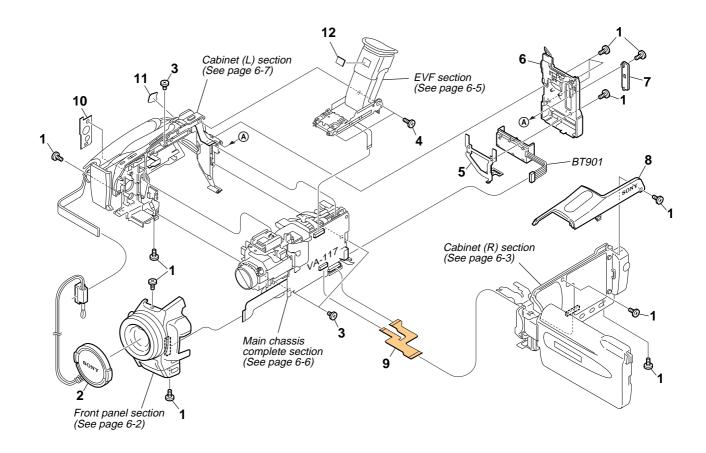
AUS : Australian model
CH : Chinese model
JE : Tourist model
EE : East European model
NE : North European model

NE: North European model HK: Hong Kong model

The components identified by mark ∆or dotted line with mark ∆ are critical for safety. Replace only with part number specified.

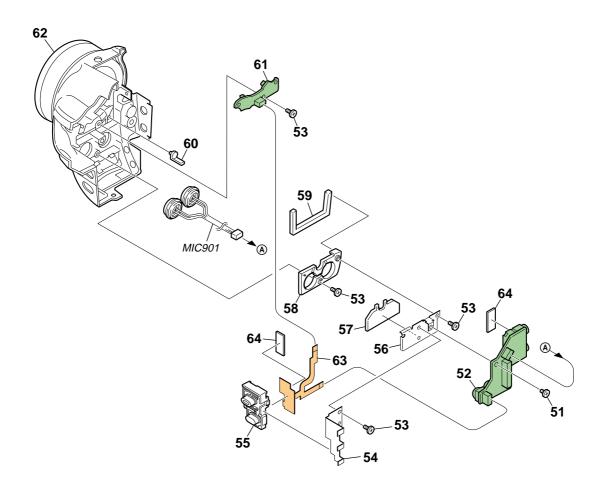
le numéro spécifié.

#### 6-1-1. OVERALL SECTION



Ref. No.	Part No.	Description	Ref. No.	Part No.	<u>Description</u>
1	3-989-735-81	SCREW (M1.7), LOCK ACE, P2	10	3-073-511-31	PLATE, JACK ORNAMENTAL
2	X-3950-537-1	CAP ASSY, LENS			(TRV16E:E,HK,AUS,CH/TRV116E/
3	4-974-725-01	SCREW (M1.7X2.5), P			TRV18E:E,HK,AUS,CH,JE/TRV118E)
4	3-713-791-11	SCREW (M1.7X5), TAPPING, P2	11	3-073-502-31	SHEET, POWER
5	3-067-024-01	BRACKET (LOWER), STRAP			(TRV18/TRV18E:E,HK,AUS,CH,JE/TRV118E)
			11	3-073-502-41	SHEET, POWER (TRV18E:AEP,UK,EE,NE)
6	X-3952-229-1	BT PANEL ASSY	11	3-073-502-51	SHEET, POWER
7	3-067-025-01	CPC LID			(TRV16/TRV16E:E,HK,AUS,CH/TRV116E)
8	X-3952-231-1	TOP CABINET ASSY	11	3-073-502-61	SHEET, POWER (TRV16E:AEP,UK,EE,NE)
9	1-684-248-11	FP-434 FLEXIBLE BOARD			
10	3-073-511-11	PLATE, JACK ORNAMENTAL (TRV16/TRV18)	12	3-074-433-01	LABEL, COLOR (VF)
			BT901	1-694-772-11	TERMINAL BOARD, BATTERY
10	3-073-511-21	PLATE, JACK ORNAMENTAL (TRV16E:AEP,UK,EE,NE/TRV18E:AEP,UK,EE,NE)			

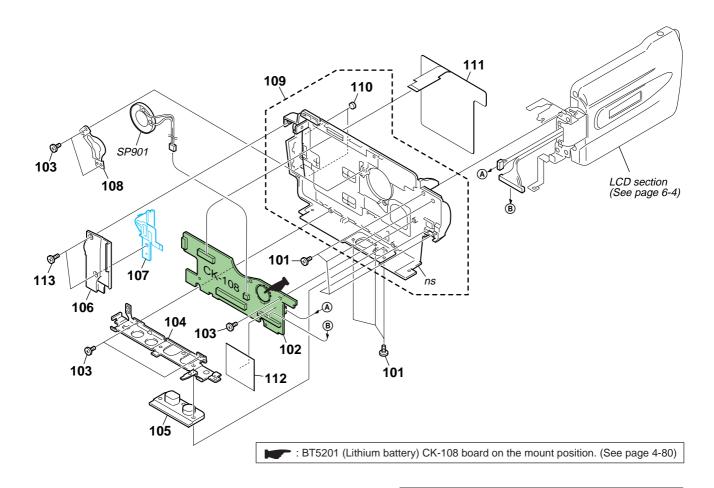
## 6-1-2. FRONT PANEL SECTION



Ref. No.	Part No.	Description	Ref. No.	Part No.	<u>Description</u>
51	4-974-725-01	SCREW (M1.7X2.5), P	59	3-074-585-01	CUSHION, MICROPHONE
52	A-7078-104-A	MA-409 BOARD, COMPLETE	60	3-073-462-01	LIGHT, TALLY GUIDE
53	3-713-791-51	SCREW (M1.7X3.5), TAPPING, P2	61	A-7078-103-A	FB-219 BOARD, COMPLETE
54	3-073-464-01	RETAINER, FOCUS BUTTON	62	X-3952-401-1	F PANEL ASSY
55	3-073-463-01	FOCUS, BUTTON	63	1-684-258-21	FP-444 FLEXIBLE BOARD
56	3-073-460-01	RETAINER (2), MICROPHONE	64	3-075-386-01	CUSHION, JACK
57	3-073-461-01	CUSHION, MICROPHONE RETAINER	MIC901	1-542-477-11	MICROPHONE
58	3-073-459-01	RETAINER (1), MICROPHONE			

## 6-1-3. CABINET (R) SECTION

ns: not supplied

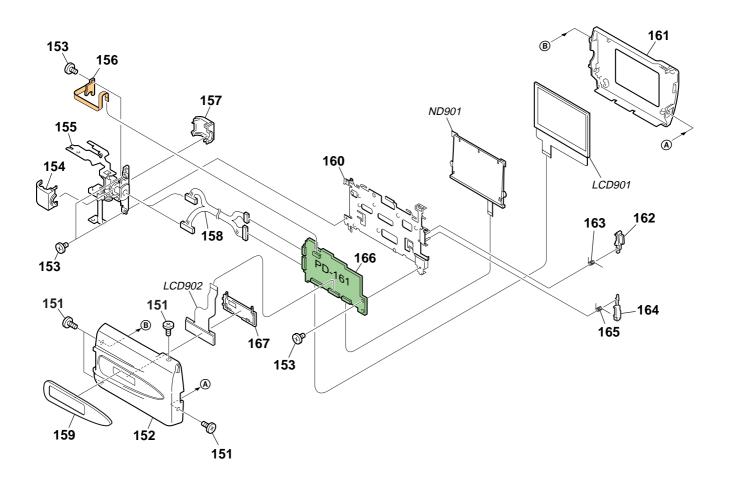


#### **CAUTION:**

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type.

Ref. No.	Part No.	<u>Description</u>	Ref. No.	Part No.	<u>Description</u>
101	3-055-573-01	SCREW (M1.7), LOCK ACE, P2	111	1-477-149-21	SWITCH BLOCK, CONTROL (SH-CX2670)
102	A-7078-105-A	CK-108 BOARD, COMPLETE			(TRV18/TRV18E:E,HK,AUS,CH,JE/TRV118E)
103	3-713-791-51	SCREW (M1.7X3.5), TAPPING, P2	111	1-477-149-31	SWITCH BLOCK, CONTROL (SH-CX2670)
104	3-074-072-01	FRAME BOTTOM			(TRV18E:AEP,UK,EE,NE)
105	3-055-257-01	TRIPOD (LARGE)	111	1-477-149-41	SWITCH BLOCK, CONTROL (SH-CX2670)
					(TRV16/TRV16E:E,HK,AUS,CH/TRV116E)
106	3-073-466-01	BLIND, KURUPON	111	1-477-149-51	SWITCH BLOCK, CONTROL (SH-CX2670)
107	1-477-147-11	SWITCH BLOCK, CONTROL (KP-CX2670)			(TRV16E:AEP,UK,EE,NE)
* 108	X-3950-471-1	RETAINER ASSY, SPEAKER	112	3-074-538-01	RETAINER, P HARNESS
109	X-3952-407-1	CABINET (R) ASSY 2.5			
110	3-959-978-02	CUSHION, PANEL	113	3-989-735-91	SCREW (M1.7), LOCK ACE, P2
			SP901	1-529-590-11	SPEAKER (2.0CM)

## 6-1-4. LCD SECTION



Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
151	3-056-233-21	SCREW (M2), LOCK ACE, P2	159	3-075-361-11	PLATE, P ORNAMENTAL (TRV118E)
152	X-3952-405-1	P CABINET (C) ASSY 2.5	160	X-3952-244-1	P FRAME ASSY (2.5)
153	4-974-725-01	SCREW (M1.7X2.5), P	161	3-073-474-01	P CABINET (M) 2.5
154	3-073-468-01	COVER (FRONT), HINGE	162	3-073-470-01	BUTTON, P OPEN
155	X-3952-242-1	HINGE ASSY	163	3-073-472-01	SPRING (U), LOCK
156	1-684-256-21	FP-442 FLEXIBLE BOARD	164	3-073-471-01	P LOCK
157	3-073-469-01	COVER (REAR), HINGE	165	3-073-473-01	SPRING (L), LOCK
158	1-961-795-11	HARNESS (PV-138)	166	A-7078-106-A	PD-161 (25SH123) BOARD, COMPLETE
159	3-073-488-01	PLATE, P ORNAMENTAL (TRV18)	167	3-073-467-01	LCD HOLDER
159	3-073-488-11	PLATE, P ORNAMENTAL (TRV18E)	LCD901	1-803-853-21	INDICATOR MODULE LIQUID CRYST
		, ,			(LQ25A3FR34)
159	3-073-488-21	PLATE, P ORNAMENTAL (TRV16)			,
159	3-073-488-31	PLATE, P ORNAMENTAL (TRV16E)	LCD902	A-7096-989-A	INDICATION LCD BLOCK ASSY
159	3-075-361-01	PLATE, P ORNAMENTAL (TRV116E)	<b>△ND901</b>	1-518-798-21	TUBE, FLUORESCENT, COLD CATHODE

The components identified by mark  $\triangle$  or dotted line with mark  $\triangle$  are critical for safety. Replace only with part number specified.

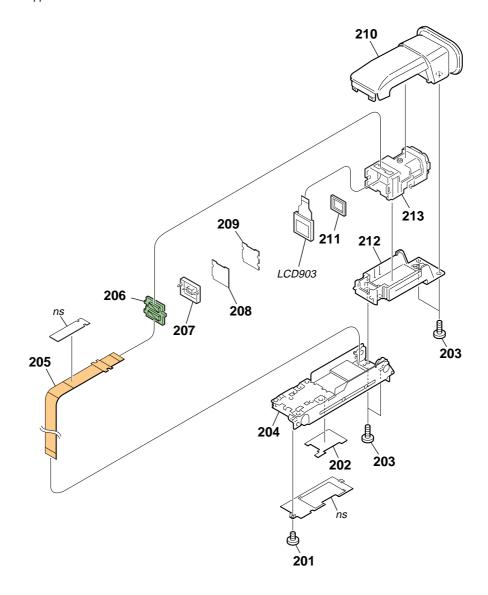
## Note:

Les composants identifiés par une marque ∆ sont critiques pour la sécurité. Ne les remplacer que par une

pièce portant le numéro spécifié.

# **6-1-5. EVF SECTION** ns : not supplied





Ref. No.	Part No.	<u>Description</u>	Ref. No.	Part No.	<u>Description</u>
201	4-974-725-01	SCREW (M1.7X2.5), P	208	3-072-211-01	ILLUMINATOR
202	3-073-454-01	SHEET, VF FLEXIBLE RETAINER	209	3-072-210-01	SHEET, PRISM
203	3-713-791-31	SCREW (M1.7X6), TAPPING, P2	210	X-3952-235-1	VF CABINET (UPPER) ASSY
204	X-3952-234-1	VF BASE ASSY	211	3-059-734-01	CUSHION (1), LCD
205	1-684-249-11	FP-435 FLEXIBLE BOARD	212	X-3952-236-1	VF CABINET (LOWER) ASSY
206	A-7078-102-A	LB-077 BOARD, COMPLETE	213	X-3951-453-1	LENS ASSY, VF
207	3-072-214-01	GUIDE (20), LAMP	LCD903	8-753-028-47	LCX032AN-5

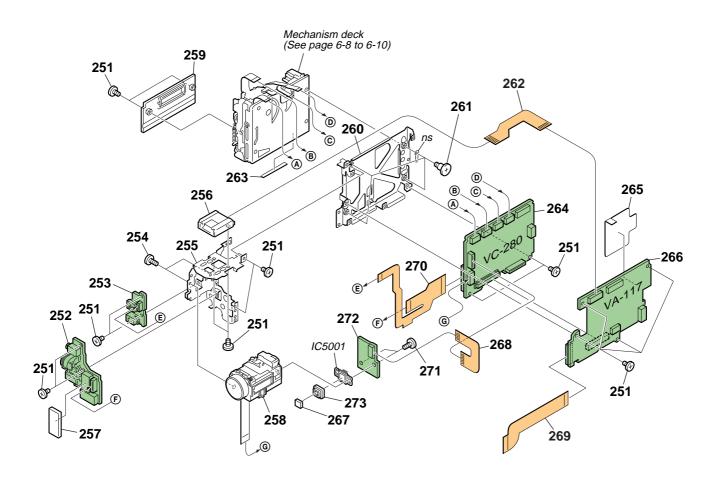
## 6-1-6. MAIN CHASSIS COMPLETE SECTION

ns: not supplied

Ref. No.

Part No.

Description

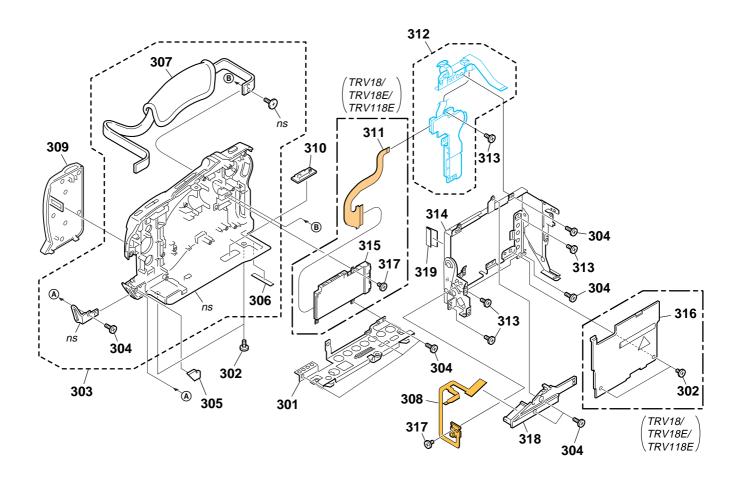


		<del></del>		
251	4-974-725-01	SCREW (M1.7X2.5), P	264	A-7078-278-
252	A-7078-100-A	JK-217 BOARD, COMPLETE		
253	A-7078-101-A	JK-218 BOARD, COMPLETE	264	A-7078-279-
254	3-713-791-51	SCREW (M1.7X3.5), TAPPING, P2		
255	3-073-432-01	FRAME (960), LENS	265	3-074-613-0
		, ,	266	A-7078-099-
256	1-815-124-11	CONNECTOR, EXTERNAL (HOT SHOE)		
		(TRV18/TRV18E/TRV118E)	266	A-7078-162-
256	1-815-124-21	CONNECTOR, EXTERNAL (HOT SHOE)		
		(TRV16/TRV16E/TRV116E)		
257	3-074-612-01	CUSHION, SENSOR PROTECTION	267	1-758-155-2
258	8-848-748-01	DEVICE, LENS LSV-650D	268	1-684-253-1
259	3-059-722-01	COVER, CASSETTE COMPARTMENT	269	1-684-251-1
		, , , , , , , , , , , , , , , , , , , ,	270	1-684-259-1
260	X-3952-233-1	MD FRAME ASSY	271	3-713-791-4
261	3-059-718-01	SCREW (M1.4X1.5)		
262	1-684-250-11	FP-436 FLEXIBLE BOARD	272	A-7078-107-
263	3-059-725-01		273	3-053-973-0
264		VC-280 (F) BOARD, COMPLETE (SERVICE)	IC5001	A-7031-244-
		(TRV18/TRV18E:E,HK,AUS,CH,JE/TRV118E)		
		(,,,,,,,	IC5001	A-7031-276-
264	A-7078-277-A	VC-280 (0) BOARD, COMPLETE (SERVICE)	.00001	
		(TRV16E:AEP,UK,EE,NE)		
		(THE TOL.ALT, ON, LE, IVE)		

Ref. No.	Part No.	<u>Description</u>
264	A-7078-278-A	VC-280 BOARD, COMPLETE (SERVICE)
264	A-7078-279-A	(TRV16/TRV16E:E,HK,AUS,CH/TRV116E) VC-280 (FO) BOARD, COMPLETE (SERVICE) (TRV18E:AEP,UK,EE,NE)
265	3-074-613-01	VV SHIELD SHEET
266	A-7078-099-A	VA-117 (F) BOARD, COMPLETE
		(TRV18/TRV18E/TRV118E)
266	A-7078-162-A	VA-117 MOUNT BOARD, COMPLETE
		(TRV16/TRV16E/TRV116E)
		,
267	1-758-155-21	FILTER BLOCK, OPTICAL (OFB-04-14)
268	1-684-253-11	FP-439 FLEXIBLE BOARD
269	1-684-251-11	FP-437 FLEXIBLE BOARD
270	1-684-259-11	FP-445 FLEXIBLE BOARD
271	3-713-791-41	SCREW (M1.7X5), TAPPING, P2
		,
272	A-7078-107-A	CD-365 BOARD, COMPLETE
273	3-053-973-01	RUBBER (W), SEAL
IC5001	A-7031-244-A	CCD BLOCK ASSY (CCD IMAGER)
		(TRV16/TRV18)
IC5001	A-7031-276-A	CCD BLOCK ASSY (CCD IMAGER)
		(TRV16E/TRV116E/TRV18E/TRV118E)
		,

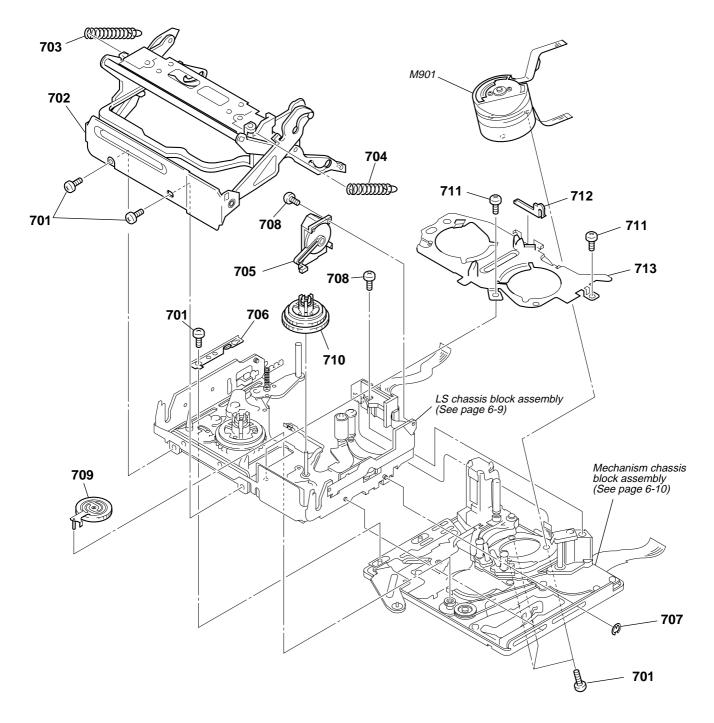
## 6-1-7. CABINET (L) SECTION

ns : not supplied



Ref. No.	Part No.	Description	Ref. No.	Part No.	<u>Description</u>
301	X-3952-237-1	LOCK ASSY, GRIP	310	3-073-456-01	EJECT KNOB
302	3-989-735-91	SCREW (M1.7), LOCK ACE, P2	311	1-684-252-11	FP-438 FLEXIBLE BOARD
303	X-3952-414-1	CABINET (L) ASSY (TRV18)			(TRV18/TRV18E/TRV118E)
303	X-3952-415-1	CABINET (L) ASSY (TRV18E/TRV118E)	312	1-477-148-11	SWITCH BLOCK, CONTROL (PS-CX2670)
303	X-3952-417-1	CABINET (L) ASSY (TRV16E/TRV116E)	313	3-713-791-51	SCREW (M1.7X3.5), TAPPING, P2
			314	X-3952-238-1	CS FRAME ASSY
303	X-3952-418-1	CABINET (L) ASSY (TRV16)			
304	3-713-791-11	SCREW (M1.7X5), TAPPING, P2	315	1-816-271-11	CONNECTOR, MEMORY STICK 10P
305	3-074-586-01	CUSHION (2), MUFFLE			(TRV18/TRV18E/TRV118E)
* 306	3-055-189-01	FOOT (A)	316	3-073-457-01	COVER, GRIP (TRV18/TRV18E/TRV118E)
307	3-061-550-01	BELT, ĠŔĬP	317	4-974-725-01	SCREW (M1.7X2.5), P
			318	3-073-458-01	COVER, ZOOM
308	1-684-257-21	FP-443 FLEXIBLE BOARD	319	3-073-928-01	L SHEET
309	X-3952-230-1	COVER ASSY, JACK			

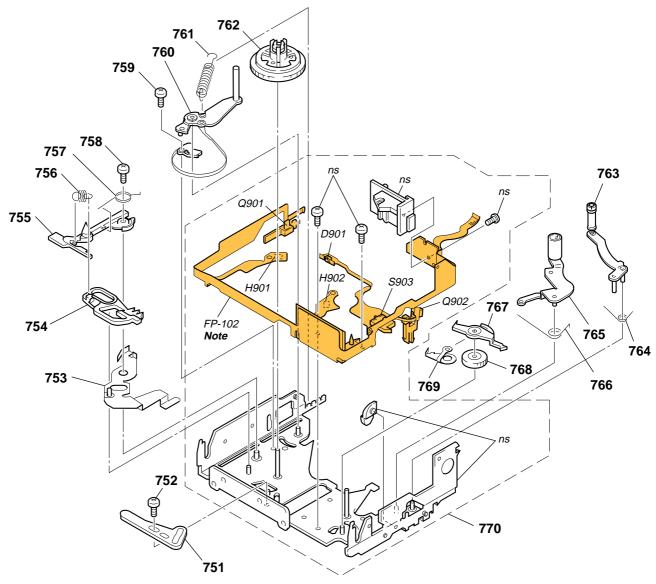
## 6-1-8. CASSETTE COMPARTMENT AND DRUM BLOCK ASSEMBLY



Ref. No.	Part No.	<u>Description</u>	Ref. No.	Part No.	Description
701	3-703-816-14	SCREW (M1.4)	708	3-704-197-21	SCREW (M1.4X2.5), SPECIAL HEAD
702	X-3952-017-3	CASSETTE COMPARTMENT ASSY	709	X-3950-364-1	GEAR ASSY, GOOSENECK
703	3-059-082-01	SPRING, TENSION	710	X-3950-366-1	TABLE ASSY, T REEL
		(CASSETTE COMPARTMENT S)	711	3-075-097-01	SCREW (M1.4X1.4), SPECIAL HEAD
704	3-059-208-01	SPRING (CASSETTE COMPARTMENT T)	712	3-059-093-01	RETAINER, LED
705	X-3950-370-3	DAMPER ASSY			
			713	X-3950-361-1	PLATE ASSY, RETAINER
706	3-059-101-03	RETAINER, LS GUIDE	M901	A-7048-940-A	DRUM (DEH-18A-R)
707	7-624-102-04	STOP RING 1.5, TYPE -E			

## 6-1-9. LS CHASSIS BLOCK ASSEMBLY

ns: not supplied

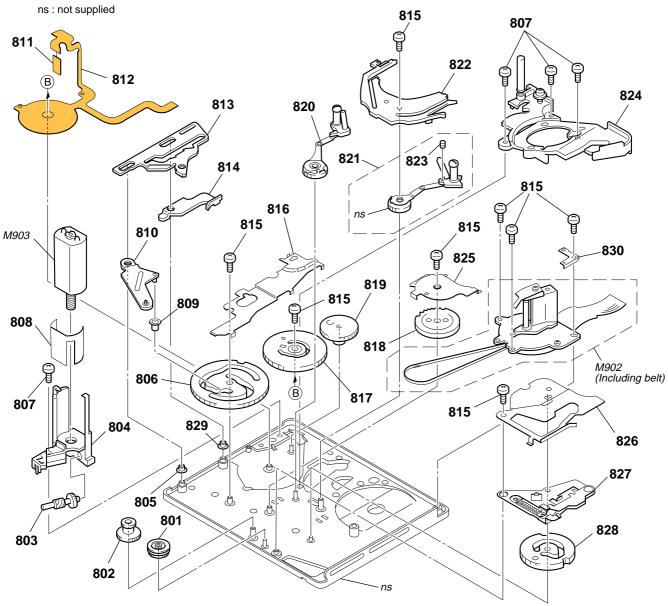


Note: FP-102 is included in the LS sub assy and is attached to chassis by hot-press.

Because installation of FP-102 requires a very high accuracy, FP-102 is not supplied as an independent service parts.

Ref. No.	Part No.	Description	Ref. No.	Part No.	<u>Description</u>
751	3-059-173-01	PLATE, LS CAM	764	3-059-165-01	SPRING (TG7 RETURN), TORSION
752	3-075-097-01	SCREW (M1.4X1.4), SPECIAL HEAD	765	X-3950-359-1	ARM ASSY, PINCH
753	X-3950-371-1	ARM ASSY, BRAKE (S) DRIVING	766	3-059-161-01	SPRING (PINCH RETURN), TORSION
754	3-059-166-01	BRAKE (S)	767	3-059-170-01	BRAKE (T)
755	3-059-146-01	POSITIONING (S), CASSETTE	768	3-059-171-01	GEAR (T), BRAKE
756	3-059-167-01	SPRING (BRAKE S), TENSION COIL	769	3-059-172-01	SPRING (T), BRAKE
757	3-059-169-01	SPRING (BRAKE S ARM), TORSION	770	A-7094-816-B	LS BLOCK ASSY
758	3-703-816-14	SCREW (M1.4)	D901	8-719-078-71	DIODE LA57A, SO (TAPE LED)
759	3-059-090-01	SCREW (M1.4X2.5), SPECIAL HEAD	H901	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (S REEL)
* 760	X-3950-358-4	TG1 ASSY	H902	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (T REEL)
761	3-059-156-01	SPRING (TENSION REGULATOR)	Q901	8-729-028-71	TRANSISTOR PN166, SO (TAPE END)
762	X-3950-365-2	TABLE ASSY, S REEL	Q902	8-729-028-71	TRANSISTOR PN166, SO (TAPE TOP)
763	A-7094-819-A	TG7 BLOCK ASSY	S903	1-572-288-11	SWITCH, PUSH (C.C.DOWN)

## 6-1-10. MECHANISM CHASSIS BLOCK ASSEMBLY



801         3-059-211-01         GEAR, CONVERSION         818         3-059-139-01         GEAR, GL DRIVING           802         3-059-220-01         GEAR, RELAY         819         3-059-188-01         GEAR, DECELERATION           803         3-059-187-01         SHAFT, WORM         820         A-7094-818-A         COASTER (S) BLOCK ASSY           804         3-059-186-03         HOLDER, MOTOR         821         A-7094-817-A         COASTER (T) BLOCK ASSY           805         3-060-002-01         ROLLER, LS GUIDE         822         3-059-126-01         RAIL, GUIDE           806         3-059-189-01         GEAR (A), CAM         823         3-962-914-01         SCREW (M1.4X2)           807         3-704-197-21         SCREW (M1.4X2.5), SPECIAL HEAD         824         A-7094-822-A         DRUM BASE BLOCK ASSY           808         3-059-125-01         SHIELD, MOTOR         825         3-059-118-01         COVER (B), GEAR           810         3-059-190-01         ARM, LS         826         3-059-083-01         COVER (C), GEAR           811         1-677-084-11         FP-228 FLEXIBLE BOARD         829         3-063-355-01         ROLLER (S), LS GUIDE           813         3-059-148-01         SLIDER, TG1 CAM         830         3-065-202-01	Ref. No.	Part No.	<u>Description</u>	Ref. No.	Part No.	<u>Description</u>
803       3-059-187-01       SHAFT, WORM       820       A-7094-818-A       COASTER (S) BLOCK ASSY         804       3-059-186-03       HOLDER, MOTOR       821       A-7094-817-A       COASTER (T) BLOCK ASSY         805       3-060-002-01       ROLLER, LS GUIDE       822       3-059-126-01       RAIL, GUIDE         806       3-059-189-01       GEAR (A), CAM       823       3-962-914-01       SCREW (M1.4X2)         807       3-704-197-21       SCREW (M1.4X2.5), SPECIAL HEAD       824       A-7094-822-A       DRUM BASE BLOCK ASSY         808       3-059-225-01       SHIELD, MOTOR       825       3-059-118-01       COVER (B), GEAR         809       3-059-191-01       ROLLER, LS       826       3-059-083-01       COVER (C), GEAR         810       3-059-190-01       ARM, LS       827       X-3950-368-1       ARM ASSY, PINCH DRIVING         811       1-677-049-11       FP-228 FLEXIBLE BOARD (DEW SENSOR)       828       3-059-192-01       GEAR (B), CAM         812       1-677-084-11       FP-100 FLEXIBLE BOARD       829       3-063-355-01       ROLLER (S1), LS GUIDE         813       3-059-148-01       ARM, TG1 DRIVING       830       3-065-202-01       SUPPORT, TG7         814       3-059-148-01       A	801	3-059-211-01	GEAR, CONVERSION	818	3-059-139-01	GEAR, GL DRIVING
804       3-059-186-03       HOLDÉR, MOTOR       821       A-7094-817-A       COASTER (T) BLOCK ASSY         805       3-060-002-01       ROLLER, LS GUIDE       822       3-059-126-01       RAIL, GUIDE         806       3-059-189-01       GEAR (A), CAM       823       3-962-914-01       SCREW (M1.4X2)         807       3-704-197-21       SCREW (M1.4X2.5), SPECIAL HEAD       824       A-7094-822-A       DRUM BASE BLOCK ASSY         808       3-059-225-01       SHIELD, MOTOR       825       3-059-118-01       COVER (B), GEAR         809       3-059-191-01       ROLLER, LS       826       3-059-083-01       COVER (C), GEAR         810       3-059-190-01       ARM, LS       827       X-3950-368-1       ARM ASSY, PINCH DRIVING         811       1-677-049-11       FP-228 FLEXIBLE BOARD (DEW SENSOR)       828       3-059-192-01       GEAR (B), CAM         812       1-677-084-11       FP-100 FLEXIBLE BOARD       829       3-063-355-01       ROLLER (S1), LS GUIDE         813       3-059-149-01       SLIDER, TG1 CAM       830       3-065-202-01       SUPPORT, TG7         814       3-059-148-01       ARM, TG1 DRIVING       M902       8-835-685-01       MOTOR, DC SCD18A/C-NP (INCLUDING BELT)         815       3-703-81	802	3-059-220-01	GEAR, RELAY	819	3-059-188-01	GEAR, DECELERATION
805       3-060-002-01       ROLLER, LS GUIDE       822       3-059-126-01       RAIL, GUIDE         806       3-059-189-01       GEAR (A), CAM       823       3-962-914-01       SCREW (M1.4X2)         807       3-704-197-21       SCREW (M1.4X2.5), SPECIAL HEAD       824       A-7094-822-A       DRUM BASE BLOCK ASSY         808       3-059-225-01       SHIELD, MOTOR       825       3-059-118-01       COVER (B), GEAR         809       3-059-191-01       ROLLER, LS       826       3-059-083-01       COVER (C), GEAR         810       3-059-190-01       ARM, LS       827       X-3950-368-1       ARM ASSY, PINCH DRIVING         811       1-677-049-11       FP-228 FLEXIBLE BOARD (DEW SENSOR)       828       3-059-192-01       GEAR (B), CAM         812       1-677-084-11       FP-100 FLEXIBLE BOARD       829       3-063-355-01       ROLLER (S1), LS GUIDE         813       3-059-149-01       SLIDER, TG1 CAM       830       3-065-202-01       SUPPORT, TG7         814       3-059-148-01       ARM, TG1 DRIVING       M902       8-835-685-01       MOTOR, DC SCD18A/C-NP (INCLUDING BELT)         815       3-703-816-14       SCREW (M1.4)       M903       A-7094-823-A       MOTOR BLOCK ASSY, L	803	3-059-187-01	SHAFT, WORM	820	A-7094-818-A	COASTER (S) BLOCK ASSY
806 3-059-189-01 GEAR (A), CAM 807 3-704-197-21 SCREW (M1.4X2.5), SPECIAL HEAD 808 3-059-225-01 SHIELD, MOTOR 809 3-059-191-01 ROLLER, LS 810 3-059-190-01 ARM, LS 821 3-962-914-01 SCREW (M1.4X2) 822 A-7094-822-A DRUM BASE BLOCK ASSY 823 3-059-118-01 COVER (B), GEAR 825 3-059-118-01 COVER (C), GEAR 826 3-059-083-01 COVER (C), GEAR 827 X-3950-368-1 ARM ASSY, PINCH DRIVING 828 3-059-192-01 GEAR (B), CAM 829 3-063-355-01 ROLLER (S1), LS GUIDE 829 3-063-355-01 ROLLER (S1), LS GUIDE 829 3-065-202-01 SUPPORT, TG7 820 3-059-148-01 ARM, TG1 DRIVING 821 3-703-816-14 SCREW (M1.4) 822 3-7034-823-A MOTOR BLOCK ASSY, L 823 3-962-914-01 SCREW (M1.4X2) 824 A-7094-822-A DRUM BASE BLOCK ASSY 825 3-059-083-01 COVER (B), GEAR 827 X-3950-368-1 ARM ASSY, PINCH DRIVING 828 3-059-192-01 GEAR (B), CAM 829 3-063-355-01 ROLLER (S1), LS GUIDE 830 3-065-202-01 SUPPORT, TG7 840 3-059-148-01 ARM, TG1 DRIVING 841 3-059-148-01 ARM, TG1 DRIVING 842 3-059-148-01 MOTOR, DC SCD18A/C-NP (INCLUDING BELT) 843 3-703-816-14 SCREW (M1.4) 844 A-7094-823-A MOTOR BLOCK ASSY, L	804	3-059-186-03	HOLDER, MOTOR	821	A-7094-817-A	COASTER (T) BLOCK ASSY
807 3-704-197-21 SCREW (M1.4X2.5), SPECIAL HEAD 808 3-059-225-01 SHIELD, MOTOR 809 3-059-191-01 ROLLER, LS 810 3-059-190-01 ARM, LS 826 3-059-083-01 COVER (B), GEAR 827 X-3950-368-1 ARM ASSY, PINCH DRIVING 811 1-677-049-11 FP-228 FLEXIBLE BOARD (DEW SENSOR) 812 1-677-084-11 FP-100 FLEXIBLE BOARD 813 3-059-149-01 SLIDER, TG1 CAM 814 3-059-148-01 ARM, TG1 DRIVING 815 3-703-816-14 SCREW (M1.4) 816 3-059-117-01 COVER (A), GEAR	805	3-060-002-01	ROLLER, LS GUIDE	822		
808 3-059-225-01 SHIELD, MOTOR 825 3-059-118-01 COVER (B), GEAR 809 3-059-191-01 ROLLER, LS 826 3-059-083-01 COVER (C), GEAR 810 3-059-190-01 ARM, LS 827 X-3950-368-1 ARM ASSY, PINCH DRIVING 811 1-677-049-11 FP-228 FLEXIBLE BOARD (DEW SENSOR) 828 3-059-192-01 GEAR (B), CAM 812 1-677-084-11 FP-100 FLEXIBLE BOARD 829 3-063-355-01 ROLLER (S1), LS GUIDE 813 3-059-149-01 SLIDER, TG1 CAM 830 3-065-202-01 SUPPORT, TG7 814 3-059-148-01 ARM, TG1 DRIVING 828 8-835-685-01 MOTOR, DC SCD18A/C-NP (INCLUDING BELT) 815 3-703-816-14 SCREW (M1.4) (CAPSTAN) 828 8-7094-823-A MOTOR BLOCK ASSY, L	806	3-059-189-01	GEAR (A), CAM	823	3-962-914-01	SCREW (M1.4X2)
809 3-059-191-01 ROLLER, LS 810 3-059-190-01 ARM, LS 811 1-677-049-11 FP-228 FLEXIBLE BOARD (DEW SENSOR) 812 1-677-084-11 FP-100 FLEXIBLE BOARD 813 3-059-149-01 SLIDER, TG1 CAM 814 3-059-148-01 ARM, TG1 DRIVING 815 3-703-816-14 SCREW (M1.4) 816 3-059-117-01 COVER (A), GEAR 827 X-3950-368-1 ARM ASSY, PINCH DRIVING 828 3-059-192-01 GEAR (B), CAM 829 3-063-355-01 ROLLER (S1), LS GUIDE 830 3-065-202-01 SUPPORT, TG7 84902 8-835-685-01 MOTOR, DC SCD18A/C-NP (INCLUDING BELT) 850 A-7094-823-A MOTOR BLOCK ASSY, L	807	3-704-197-21	SCREW (M1.4X2.5), SPECIAL HEAD	824	A-7094-822-A	DRUM BASE BLOCK ASSY
810 3-059-190-01 ARM, LS 827 X-3950-368-1 ARM ASSY, PINCH DRIVING  811 1-677-049-11 FP-228 FLEXIBLE BOARD (DEW SENSOR) 812 1-677-084-11 FP-100 FLEXIBLE BOARD 829 3-063-355-01 ROLLER (S1), LS GUIDE 813 3-059-149-01 SLIDER, TG1 CAM 830 3-065-202-01 SUPPORT, TG7 814 3-059-148-01 ARM, TG1 DRIVING M902 8-835-685-01 MOTOR, DC SCD18A/C-NP (INCLUDING BELT) 815 3-703-816-14 SCREW (M1.4) (CAPSTAN)  816 3-059-117-01 COVER (A), GEAR	808	3-059-225-01	SHIELD, MOTOR	825	3-059-118-01	COVER (B), GEAR
811 1-677-049-11 FP-228 FLEXIBLE BOARD (DEW SENSOR) 812 1-677-084-11 FP-100 FLEXIBLE BOARD 813 3-059-149-01 SLIDER, TG1 CAM 814 3-059-148-01 ARM, TG1 DRIVING 815 3-703-816-14 SCREW (M1.4) 816 3-059-117-01 COVER (A), GEAR	809	3-059-191-01	ROLLER, LS	826	3-059-083-01	COVER (C), GEAR
812 1-677-084-11 FP-100 FLEXIBLE BOARD 813 3-059-149-01 SLIDER, TG1 CAM 814 3-059-148-01 ARM, TG1 DRIVING 815 3-703-816-14 SCREW (M1.4) 816 3-059-117-01 COVER (A), GEAR  829 3-063-355-01 ROLLER (S1), LS GUIDE 830 3-065-202-01 SUPPORT, TG7 M902 8-835-685-01 MOTOR, DC SCD18A/C-NP (INCLUDING BELT) (CAPSTAN) M903 A-7094-823-A MOTOR BLOCK ASSY, L	810	3-059-190-01	ARM, LS	827	X-3950-368-1	ARM ASSY, PINCH DRIVING
813 3-059-149-01 SLIDER, TG1 CAM 814 3-059-148-01 ARM, TG1 DRIVING 815 3-703-816-14 SCREW (M1.4) 816 3-059-117-01 COVER (A), GEAR  830 3-065-202-01 SUPPORT, TG7 M902 8-835-685-01 MOTOR, DC SCD18A/C-NP (INCLUDING BELT) (CAPSTAN) M903 A-7094-823-A MOTOR BLOCK ASSY, L	811	1-677-049-11	FP-228 FLEXIBLE BOARD (DEW SENSOR)	828	3-059-192-01	GEAR (B), CAM
814 3-059-148-01 ARM, TG1 DRIVING M902 8-835-685-01 MOTOR, DC SCD18A/C-NP (INCLUDING BELT) 815 3-703-816-14 SCREW (M1.4) (CAPSTAN) 816 3-059-117-01 COVER (A), GEAR	812	1-677-084-11	FP-100 FLEXIBLE BOARD	829	3-063-355-01	ROLLER (S1), LS GUIDE
815 3-703-816-14 SCREW (M1.4) (CAPSTAN) 816 3-059-117-01 COVER (A), GEAR (CAPSTAN)	813	3-059-149-01	SLIDER, TG1 CAM	830	3-065-202-01	SUPPORT, TG7
M903 A-7094-823-A MOTOR BLOCK ASSY, L 816 3-059-117-01 COVER (A), GEAR	814	3-059-148-01	ARM, TG1 DRIVING	M902	8-835-685-01	MOTOR, DC SCD18A/C-NP (INCLUDING BELT)
816 3-059-117-01 COVER (A), GEAR	815	3-703-816-14	SCREW (M1.4)			(CAPSTAN)
				M903	A-7094-823-A	MOTOR BLOCK ASSY, L
817 X-3950-367-1 GEAR ASSY, MODE	816	3-059-117-01	COVER (A), GEAR			
	817	X-3950-367-1	GEAR ASSY, MODE			

**CD-365** 

**CK-108** 

### 6-2. ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these
- CAPACITORS: uF: μF

COILS uH: μH RESISTORS

All resistors are in ohms.

METAL: metal-film resistor

METAL OXIDE: Metal Oxide-film resistor

F: nonflammable SEMICONDUCTORS

In each case, u:  $\mu$ , for example: uA...:  $\mu A...$  , uPA... ,  $\mu PA...$  ,

uPB... ,  $\mu PB...$  , uPC... ,  $\mu PC...$ uPD..., μPD...

Abbreviation

CND : Canadian model AUS : Australian model CH : Chinese model

When indicating parts by reference number, please include the board name.

The components identified by mark  $\triangle$  or dotted line with mark  $\triangle$  are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque 

Ne les remplacer que par une pièce portant le numéro spécifié.

EE : East European model NE : North European model HK : Hong Kong model model

			Danamintian								
			Description	Part No.	Ref. No.				Description	Part No.	Ref. No.
			< DIODE >					COMPLETE	CD-365 BOARD, (		
			< DIODE >						*******	A 7070 107 A	
		48.2(TPL3)	DIODE 01ZA	8-719-062-16	D5201	te board.)	is complt	luded in thi	(IC5001 is not inc		
		-		8-719-056-85	D5203				0.5.0.50		
				8-719-062-16	D5204				< CAPACITOR >		
				8-719-062-16 8-719-062-16	D5205 D5206	10V	20%	10uF	TANTAL. CHIP	1_10/1_851_11	C5001
		NO.2(11 LO)	DIODE 012A	0-7 13-002-10	D3200	50V	0.5PF	10PF	CERAMIC CHIP		C5001
		>	< RESISTOR :			25V	10%	0.01uF	CERAMIC CHIP		C5003
						20V	20%	10uF	TANTAL. CHIP	1-113-985-11	C5004
1/16W									CONNECTOR		
1/16W 1/16W									< CONNECTOR >		
1/16W								C/FPC 16P	CONNECTOR FEC	1-815-315-11	CN5001
1/16W	5%				R5209				CONNECTOR, FFO		
1/16W									< IC >		
1/16W 1/16W							CED)	/ /CCD IMA	CCD BLOCK ACC	A 7021 044 A	105001
1/16W 1/16W						/16/TRV18)		r (GGD IIVIA	COD BLOCK ASS	A-7031-244-A	103001
1/16W	5%				R5214	, 10, 111110)		Y (CCD IMA	CCD BLOCK ASS	A-7031-276-A	IC5001
						E/TRV118E)	/TRV18E	E/TRV116E	(TRV16		
1/16W									2011		
1/16W 1/16W									< GOIL >		
1/16W								220uH	INDUCTOR	1-414-406-11	I 5001
1/16W	5%	3.9K		1-218-960-11	R5219						2000.
									< TRANSISTOR >		
1/16W					R5220	T-1	F40F447	0004470	TRANSISTOR	0.700.447.70	05004
1/16W 1/16W						11	F13F14-1	2504178-	TRANSISTOR	8-729-117-73	Q5001
1/16W									< RESISTOR >		
1/16W	5%	8.2K		1-218-964-11	R5224				( NEOIOTOTT )		
						1/16W	5%	3.3K	METAL CHIP	1-216-827-11	R5001
1/16W 1/16W											
1/1000	3%							OMPLETE	CK-108 BOARD (	Δ-7078-105-Δ	
				1-218-990-11	R5228				******	7. 7070 100 T	
			< SWITCH >						< BATTERY >		
					_		DARY)	M (SECONE	BATTERY, LITHIU	1-756-128-11	BT5201
									< CONNECTOR >		
				1-786-157-11	S5204						
		CTILE (FF)	SWITCH, TAC	1-786-157-11	S5205					1-573-927-11	
		OTH E (DALICE)	CMUTOUL TAO	1 700 157 11	05000		40P				
N/CLOSE)	NFI OPF								,		
.iv/ ULUUL)	IVEL OI L	O.1 (1 NL1) (FA	JVVII OII, I UC	1700 170-11	03207		D) 2P		*	1-778-506-21	
							,	,		1-691-346-11	CN5207
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5% 5% 5% 5% 5% 5% 5% 5% 5% 5% 5% 5% 5% 5	1K 1.2K 1.2K 1.2K 1.2K 1.2K 1.5K 1.5K 1.5K 1.5K 2.2K 2.2K 2.2K 2.2K 3.9K 3.9K 3.9K 8.2K 8.2K 2.7K 8.2K 2.7K 8.2K 0 0 CTILE (STOP) CTILE (REW) CTILE (RESET) CTILE (PAUSE)	RES-CHIP RES	1-218-960-11 1-218-964-11 1-218-964-11 1-218-964-11 1-218-970-11 1-218-964-11 1-218-990-11 1-218-990-11 1-786-157-11 1-786-157-11 1-786-157-11	R5210 R5211 R5212 R5213 R5214 R5215 R5216 R5217 R5218 R5219 R5221 R5222 R5223 R5224 R5225 R5223 R5224 R5225 R5228 S5201 S5201 S5202 S5203 S5204	20V /16/TRV18) E/TRV118E)	20%  GER) (TRV GER) //TRV18E  5%  DARY)  40P	10uF  C/FPC 16P  C/FPC 6P  Y (CCD IMA  Y (CCD IMA E/TRV116E  220uH  2SC4178-  3.3K  COMPLETE ***********************************	TANTAL. CHIP  < CONNECTOR >  CONNECTOR, FFC CONNECTOR, FFC CONNECTOR, FFC  < IC >  CCD BLOCK ASSY (TRV16)  < COIL >  INDUCTOR  < TRANSISTOR >  TRANSISTOR >  METAL CHIP  CK-108 BOARD, 0  ***********************************	1-113-985-11  1-815-315-11 1-766-336-21  A-7031-244-A A-7031-276-A  1-414-406-11  8-729-117-73  1-216-827-11  A-7078-105-A  1-756-128-11  1-573-927-11 1-815-231-11 1-794-997-11 1-794-377-21 1-778-506-21	C5004  CN5001 CN5002  IC5001 IC5001  L5001  A5001  R5001  CN5201 CN5202 CN5203 CN5204 CN5205

Be sure to read "Precautions upon replacing CCD imager" on page 4-9 when changing the CCD imager.

FB-2		217 JK-	218	LB-0	)77	<i><b>0</b>L/11(</i> (	71102					
Ref. No.	Part No.	<u>Description</u>				Ref. No.	Part No.	<u>Description</u>				
	A-7078-103-A	FB-219 BOARD, (						< VARISTOR >				
		< CONNECTOR >				VD5302	1-801-923-11	VARISTOR, CHIP VARISTOR, CHIP VARISTOR, CHIP	1			
CN6001	1-779-327-11	CONNECTOR, FFO	C/FPC 6P					VARISTOR, CHIP VARISTOR, CHIP				
		< DIODE >						VARISTOR, CHIP				
D6001	8-719-074-30	DIODE SML-310	OLTT86				. 555 57 1 21					
		< PHOTO INTERF	RUPTER >				A-7078-101-A	JK-218 BOARD, COMPLETE				
		IC GP1S092HCPI IC GP1S092HCPI						< CONNECTOR >				
		< RESISTOR >						CONNECTOR, SO				
	1-218-990-11 1-218-951-11	RES-CHIP	0 680	5%	1/16W		1-794-276-11 1-779-330-21	CONNECTOR, SQUARE TYPE 4P (DV IN/OL CONNECTOR, FFC/FPC 12P			IN/OUT)	
R6003	1-218-947-11	RES-CHIP	330	5%	1/16W			< DIODE >				
	A-7078-100-A	JK-217 BOARD, (	******				8-719-056-85 8-719-056-85	DIODE 01ZA8.2 DIODE UDZSTE DIODE UDZSTE DIODE 1SS357	-178.2B -178.2B	1		
		< CONNECTOR >						< LINE FILTER >	R >			
CN5305	1-779-334-11	CONNECTOR, FF	C/FPC 20P			LF5351	1-419-100-21	INDUCTOR	0uH			
		< DIODE >					1-419-100-21	INDUCTOR	0uH			
D5301 D5302		DIODE UDZSTEDIODE 01ZA8.2				DEOE	1 010 005 11	< RESISTOR >	401/	F0/	4 /4 00 44	
		< FERRITE BEAD	>			R5351 R5352	1-218-965-11 1-218-965-11		10K 10K	5% 5%	1/16W 1/16W	
	1-500-444-11 1-469-179-21		OuH OuH					< SWITCH >				
FB5303 FB5304	1-469-179-21 1-469-179-21	FERRITE FERRITE	OuH OuH			S5351	1-786-227-21	SWITCH, TACTILE (SUPER NS)				
	1-469-179-21 1-500-444-11		OuH OuH				A-7078-102-A	LB-077 BOARD, COMPLETE ***********************************				
	1-500-444-11 1-500-444-11		OuH OuH					< CAPACITOR >				
	1-500-444-11		0uH			C6101 C6102		CERAMIC CHIP	0.1uF 2.2uF	10%	10V 16V	
J5301	1-793-995-11	JACK, SUPER SM	MALL TYPE	(LANC)				< CONNECTOR >				
J5302	1-694-651-11	TERMINAL BOAF	RD (S VIDEO	)/AUDIO/	VIDEO)	CN6101	1-691-358-21	CONNECTOR, FFC/FPC (ZIF) 20P				
		< RESISTOR >				CN6102	1-691-354-21	CONNECTOR, FFC/FPC (ZIF) 16P				
R5301 R5302	1-216-864-11 1-216-864-11		0 0	5% 5%	1/16W 1/16W			< DIODE >				
	1-216-864-11 1-216-864-11		0	5% 5%	1/16W 1/16W	D6102	8-719-082-33	DIODE NSCW10	00-T39			
	1-216-864-11		0	5%	1/16W			< IC >				
		< SENSOR >				IC6101	8-759-581-11	IC NJM2125F(TE2)				
		SENSOR, ANGUL		,	,			< TRANSISTOR >				
3E33U2	1-003-042-41	SENSOR, ANGUL	AN VELUUI	וז (רווט	пј	Q6101 Q6102	8-729-054-48 8-729-054-48	,				

LB-077

**MA-409** 

PD-161

Ref. No.	Part No.	<u>Description</u>				Ref. No.	Part No.	<u>Description</u>			
		< RESISTOR >					A-7078-106-A	PD-161 (25SH123			
R6102 R6103 R6104	1-208-941-11 1-208-719-11 1-218-959-11	METAL CHIP	180K 33K 3.3K	0.5% 0.5% 5%	1/16W 1/16W 1/16W			< CAPACITOR >			
R6105 R6106	1-216-839-11 1-211-977-11	METAL CHIP METAL CHIP	33K 22	5% 0.5%	1/16W 1/10W	C5501 C5504	1-117-920-11 1-164-943-11	TANTAL. CHIP CERAMIC CHIP	10uF 0.01uF	20% 10%	6.3V 16V
		< THERMISTOR >	•			C5505 C5506	1-164-943-11 1-164-943-11		0.01uF 0.01uF	10% 10%	16V 16V
TH6101	1-810-811-11	THERMISTOR, N				C5507	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
			(1000)			C5508 C5509	1-125-777-11 1-135-177-21	CERAMIC CHIP TANTALUM CHIP	0.1uF 1uF	10% 20%	10V 20V
	A-7078-104-A	MA-409 BOARD,				C5510	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
		*****	*****			C5511 C5512	1-164-739-11 1-125-777-11	CERAMIC CHIP CERAMIC CHIP	560PF 0.1uF	5% 10%	50V 10V
		< CAPACITOR >				C5513	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
C5901		CERAMIC CHIP	0.01uF	10%	25V	C5514	1-117-920-11	TANTAL. CHIP	10uF	20%	6.3V
C5902	1-11/-919-11	TANTAL. CHIP	10uF	20%	6.3V	C5515 C5516	1-162-964-11 1-164-870-11	CERAMIC CHIP CERAMIC CHIP	0.001uF 68PF	10% 5%	50V 50V
		< CONNECTOR >				C5517	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
	1-816-232-11	,		D) 4P		C5518	1-107-826-11		0.1uF	10%	16V
	1-779-336-11	CONNECTOR, FFC				C5519 C5520	1-107-826-11 1-131-615-11	CERAMIC CHIP	0.1uF 6.8uF	10% 20%	16V 16V
0140000	1 770 020 21	•	,,,,,			C5521	1-127-573-11	CERAMIC CHIP	1uF	10%	16V
		< DIODE >				C5524	1-127-573-11	CERAMIC CHIP	1uF	10%	16V
D5901	8-719-067-44					C5527	1-164-943-11		0.01uF	10%	16V
D5902 D5903		DIODE CL-310IF DIODE MA111-(				C5528 C5530	1-135-177-21 1-164-943-11	TANTALUM CHIP CERAMIC CHIP	1uF 0.01uF	20% 10%	20V 16V
D5905		DIODE UDZSTE-				C5531	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
		< FERRITE BEAD	_			C5603	1-164-657-11	CERAMIC CHIP	0.015uF	10%	50V
						C5604	1-125-777-11		0.1uF	10%	10V
	1-500-444-11 1-500-444-11		OuH OuH			C5605 ⚠ C5606	1-125-777-11 1-131-959-91	CERAMIC CHIP CERAMIC CHIP	0.1uF 12PF	10% 10%	10V 3KV
	1-500-444-11		OuH			C5607	1-131-959-91	CERAMIC CHIP	12PF 4.7uF	10%	10V
FB5904	1-500-444-11	FERRITE	0uH					< CONNECTOR >			
		< IC >									
IC5901	8-742-221-00	HYB IC SBX305	5-01				1-573-364-11 1-764-709-11	CONNECTOR, FFC		10P	
		< JACK >					1-794-377-21 1-794-997-11	PIN, CONNECTOR	R 8P		
							1-691-370-11	CONNECTOR, FFC			
J5901 J5902	1-691-737-41 1-569-950-41	JACK (SMALL TY JACK (SMALL TY				CN5654	1-691-384-11	CONNECTOR, FFC	FPC 20P		
		< RESISTOR >						< DIODE >			
R5901	1-216-805-11	METAL CHIP	47	5%	1/16W	D5502 D5503		DIODE 1SV290( DIODE MA111-(	,		
		< VARISTOR >				D5601	8-719-073-01	DIODE MA111-(	K8).S0		
		VARISTOR, CHIP				D5602	0-719-062-44	DIODE PG1112F			
		VARISTOR, CHIP VARISTOR, CHIP						< FERRITE BEAD	>		
		VARISTOR, CHIP					1-414-760-21		0uH		
							1-414-760-21 1-414-760-21		OuH OuH		
						100003	1-71 <del>1-</del> 700-21	LIUUIL	Juil		

#### Note:

The components identified by mark  $\triangle$  or dotted line with mark  $\triangle$  are critical for safety. Replace only with part number specified.

#### Note:

Les composants identifiés par une marque  $\triangle$  sont critiques pour la sécurité.

Ne les remplacer que par une pièce portant le numéro spécifié.

PD-161

**VA-117** 

Ref. No.	Part No.	<u>Description</u>				Ref. No.	Part No.	<u>Description</u>			
		< IC >						< COMPOSITION	CIRCUIT BI	_0CK >	
IC5501 IC5502 IC5601 IC5602	8-752-102-40 8-759-714-77 8-759-564-49 8-759-075-70	IC CXA3592R-T4 IC LZ9FF474 IC TC7W53FU(T IC TA75S393F-T	E12R)			RB5502	1-234-372-21 1-234-384-11 1-234-378-21	RES, NETWORK RES, NETWORK RES, NETWORK	1MX4	(1005) (1005) (1005)	
IC5651		IC BU9735K-E2	20011					< TRANSFORMER	٦>		
		< COIL >				<b>△</b> T5601	1-435-786-31	TRANSFORMER,	INVERTER		
L5501 L5503	1-469-555-21 1-469-891-21	INDUCTOR INDUCTOR	10uH 6.8uH					< VARISTOR >			
L5601	1-428-878-11	INDUCTOR	OuH			VD5651	1-801-862-11	VARISTOR, CHIP			
		< TRANSISTOR >					A 7079 000 A	\/A 117 /E\ DOAD	D COMPLE	TE	
Q5502		TRANSISTOR	MGSF1P0		DO)		A-7078-099-A	VA-117 (F) BOAR	(TRV18	/TRV18E	/TRV118E)
Q5503 Q5504	8-729-054-48 8-729-054-48	TRANSISTOR TRANSISTOR	N1B04FE- N1B04FE-				A-7078-162-A	VA-117 BOARD, (		e alse alse alse alse alse alse	
Q5505 Q5601	8-729-042-29 8-729-042-29		RN1104F( RN1104F(		,			*******	(TRV16		/TRV116E) ******
Q5603 Q5605	8-729-054-48 6-550-065-01	TRANSISTOR TRANSISTOR	RN4983FE CPH5504-	` ,				< CAPACITOR >			
		< RESISTOR >				C4001 C4002	1-125-777-11 1-125-777-11	CERAMIC CHIP CERAMIC CHIP	0.1uF 0.1uF	10% 10%	10V 10V
R5501	1-218-985-11	RES-CHIP	470K	5%	1/16W	C4003	1-125-777-11	CERAMIC CHIP	(TRV18 0.1uF	/TRV18E 10%	/TRV118E) 10V
R5503	1-208-931-11	METAL CHIP	68K	0.5%	1/16W	C4101	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
R5505	1-218-967-11	RES-CHIP	15K	5%	1/16W	C4103	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
R5506	1-218-958-11	RES-CHIP	2.7K	5%	1/16W						
R5507	1-218-973-11	RES-CHIP	47K	5%	1/16W	C4104	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
						C4105	1-125-837-91		1uF	10%	6.3V
R5508	1-218-975-11		68K	5%	1/16W	C4106	1-125-837-91		1uF	10%	6.3V
R5509	1-218-969-11	RES-CHIP	22K	5%	1/16W	C4107	1-164-943-11		0.01uF	10%	16V
R5510	1-218-975-11	RES-CHIP	68K	5%	1/16W	C4108	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
R5511	1-218-989-11		1M	5% 5%	1/16W	04100	1 105 000 11	CEDAMIC CUID	0.0	100/	C 01/
R5512	1-218-977-11	KES-CHIP	100K	5%	1/16W	C4109 C4110	1-125-838-11 1-125-838-11	CERAMIC CHIP CERAMIC CHIP	2.2uF 2.2uF	10% 10%	6.3V 6.3V
R5513	1-218-989-11	BES-CHID	1M	5%	1/16W	C4110		TANTAL. CHIP	2.2ur 10uF	20%	6.3V
R5515	1-218-990-11	SHORT CHIP	0	J /0	1/1044	C4111	1-125-837-91		1uF	10%	6.3V
R5516	1-218-965-11	RES-CHIP	10K	5%	1/16W	C4113		CERAMIC CHIP	0.01uF	10%	16V
R5519	1-218-990-11		0	0,0	.,	0		02	0.0.4.	. 0 / 0	
R5521	1-218-973-11		47K	5%	1/16W	C4114	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
						C4115		CERAMIC CHIP	0.01uF	10%	16V
R5523	1-218-990-11		0			C4116		CERAMIC CHIP	0.1uF	10%	10V
R5531	1-218-980-11		180K	5%	1/16W	C4117		CERAMIC CHIP	2.2uF	10%	6.3V
R5532	1-218-977-11		100K	5%	1/16W	C4118	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
R5533	1-218-989-11		1M	5%	1/16W	C4110	1 164 042 11	CEDAMIC CHID	0.01uF	100/	16V
R5534	1-218-953-11	NEO-UNIP	1K	5%	1/16W	C4119 C4120		CERAMIC CHIP TANTAL. CHIP	0.01uF 220uF	10% 20%	4V
R5540	1-218-977-11	RES-CHIP	100K	5%	1/16W	C4121	1-125-838-11		2.2uF	10%	6.3V
R5541	1-218-977-11		100K	5%	1/16W	C4122		TANTAL. CHIP	220uF	20%	4V
R5552	1-218-957-11		2.2K	5%	1/16W	C4123		TANTAL. CHIP	10uF	20%	6.3V
R5591	1-218-953-11		1K	5%	1/16W						
R5601	1-216-055-00		1.8K	5%	1/10W	C4125	1-164-858-11	CERAMIC CHIP	22PF	5%	50V
						C4201		CERAMIC CHIP	4.7uF	10%	10V
R5602	1-218-980-11		180K	5%	1/16W	C4204	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
R5603	1-218-969-11		22K	5%	1/16W	C4205		CERAMIC CHIP	0.01uF	10%	16V
R5605	1-218-942-11	RES-CHIP	120	5%	1/16W	C4206	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V
R5606	1-218-969-11		22K	5%	1/16W						
R5607	1-218-949-11	RES-CHIP	470	5%	1/16W	C4208		CERAMIC CHIP	0.01uF	10%	16V
DE010	1 010 005 11	DEC CUID	1017	F0/	4/4004	C4209		CERAMIC CHIP	560PF	5%	50V
R5612	1-218-965-11		10K	5% 5%	1/16W	C4210		CERAMIC CHIP	0.1uF	10%	10V
R5613	1-218-965-11 1-218-946-11		10K 270	5% 5%	1/16W	C4211 C4212		TANTAL. CHIP	4.7uF	20%	20V
R5651 R5652	1-218-946-11		680K	5% 5%	1/16W 1/16W	04212	1-102-904-11	CERAMIC CHIP	0.001uF	10%	50V
113032	1-210-301-11	HLO-OHIF	JUUN	J /0	1/1000	I					

Note:
The components identified by mark ♠ or dotted line with mark ♠ are critical for safety.
Replace only with part number specified.

Note:

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

**VA-117** 

Ref. No.	<u>Part No.</u>	<u>Description</u>				Ref. No.	Part No.	<u>Description</u>			
C4213	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C4437	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C4214	1-164-876-11	CERAMIC CHIP	120PF	5%	50V	C4501	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C4215	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	C4502	1-164-882-11	CERAMIC CHIP	220PF	5%	16V
C4216	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	C4503	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4217	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	C4504	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V
C4218	1-109-994-11	CERAMIC CHIP	2.2uF	10%	10V	C4505	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4219	1-164-505-11	CERAMIC CHIP	2.2uF	10 /0	16V	C4506	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4302	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	C4507	1-164-943-11	CERAMIC CHIP	0.1uF	10%	16V
C4303	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	C4508	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C4304	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	C4509	1-164-936-11	CERAMIC CHIP	680PF	10%	50V
C4305	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C4510	1-164-941-11	CERAMIC CHIP	0.0047uF	10%	16V
C4306	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	C4511	1-164-938-11	CERAMIC CHIP	0.0015uF	10%	50V
C4307	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	C4512	1-164-939-11	CERAMIC CHIP	0.0022uF	10%	50V
C4308	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	C4513	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C4309	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	C4515	1-164-935-11	CERAMIC CHIP	470PF	10%	50V
C4310	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	C4516	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C4311	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C4517	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C4312	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C4518	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C4314	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C4519	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C4315	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	C4520	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V
C4316	1-135-158-21	TANTALUM CHIP	15uF	20%	4V	C4521	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C4317	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	C4522	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C4318	1-135-259-11	TANTAL CHIP	10uF	20%	6.3V	C4523	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C4319	1-135-151-21	TANTAL OUR	4.7uF	20%	4V	C4525	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C4320	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C4526	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C4321	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	C4527	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C4322	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C4528	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C4323	1-131-862-91	TANTAL. CHIP	47uF	20%	4V	C4529	1-164-947-11	CERAMIC CHIP	0.01uF		50V
C4324	1-131-862-91	TANTAL. CHIP	47uF	20%	4V	C4530	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C4325	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	C4531	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C4326	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	C4532	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C4327	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C4533	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C4328	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C4534	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C4401	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V	C4535	1-164-506-11	CERAMIC CHIP	4.7uF	000/	16V
C4402	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V	C4536	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C4403	1-107-819-11	CERAMIC CHIP	0.022uF	10%	16V	C4538	1-165-319-11	CERAMIC CHIP	0.1uF		50V
C4404	1-164-942-11	CERAMIC CHIP	0.0068uF	10%	16V	C4539	1-135-259-11		10uF	20%	6.3V
C4405	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C4541	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C4406	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C4543	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V
C4410	1-164-937-11	CERAMIC CHIP	0.001uF	10%	50V	C4544	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C4411	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C4546		TANTAL. CHIP	4.7uF	20%	25V
C4412	1-164-874-11	CERAMIC CHIP	100PF	5%	50V	C4547	1-119-750-11		22uF	20%	6.3V
C4413 C4414	1-164-874-11	CERAMIC CHIP	100PF 0.001uF	5%	50V	C4548	1-119-750-11	TANTAL CHIP	22uF	20%	6.3V
C4414 C4416		CERAMIC CHIP CERAMIC CHIP	100PF	10% 5%	50V 50V	C4549 C4550	1-135-259-11	TANTAL. CHIP TANTAL. CHIP	10uF 22uF	20% 20%	6.3V 6.3V
04410	1-104-074-11	GENAIVIIG GHIF	TOUFF	J /0	307	04550	1-119-750-11	IANIAL. UNIF	ZZUF	20 /0	0.37
C4417	1-164-874-11	CERAMIC CHIP	100PF	5%	50V	C4551	1-104-913-11	TANTAL. CHIP	10uF	20%	16V
C4419		CERAMIC CHIP	0.1uF	10%	10V	C4553	1-135-259-11		10uF	20%	6.3V
C4420		CERAMIC CHIP	0.1uF	10%	10V	C4554	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C4421	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	C4555	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C4423	1-125-777-11	CERAMIC CHIP	0.1uF	10%	10V	C4556	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
04405	1 104 040 11	OED ARMO OUTS	0.04 -	100/	10) (	0.4557	4 404 047 41	TANITAL OUR	00. 5	000/	4)./
C4425	1-164-943-11		0.01uF	10%	16V	C4557		TANTAL CHIP	22uF	20%	4V
C4426 C4427	1-164-943-11 1-164-943-11	CERAMIC CHIP CERAMIC CHIP	0.01uF 0.01uF	10% 10%	16V 16V	C4559 C4601	1-104-847-11 1-125-777-11	TANTAL. CHIP CERAMIC CHIP	22uF 0.1uF	20% 10%	4V 10V
C4428		CERAMIC CHIP	0.0068uF	10%	16V 16V	C4601	1-125-777-11		0.1uF 0.1uF	10%	10V 10V
C4420		CERAMIC CHIP		10%	16V 16V	C4602	1-125-777-11	CERAMIC CHIP	0.1ur 0.022uF	10%	16V
ひせずとび	1 107-0742-11	OLITAWIO OTHE	J.0000ui	10/0	101	07000	1 101-013-11	OFTIVINIO OHIL	U.ULLUI	10/0	101
C4430	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C4604	1-119-751-11	TANTAL. CHIP	22uF	20%	16V
C4432	1-104-847-11	TANTAL. CHIP	22uF	20%	4V	C4605	1-119-751-11	TANTAL. CHIP	22uF	20%	16V
C4433	1-164-943-11	CERAMIC CHIP	0.01uF	10%	16V	C4606	1-119-751-11	TANTAL. CHIP	22uF	20%	16V
C4434		CERAMIC CHIP	1uF	10%	6.3V	C4607	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C4435	1-119-923-81	CERAMIC CHIP	0.047uF	10%	10V	0.4000	1 100 000 11	OED 44410 0:::5	•		TRV118E)
						C4608	1-109-982-11	CERAMIC CHIP	1uF	10%	10V

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Ref. No.	Part No.	<u>Description</u>		Ref. No.	Part No.	<u>Description</u>	
		< CONNECTOR >		L4505	1-416-670-11	INDUCTOR	33uH
		COOMILOTOTT		L4506	1-416-669-11		22uH
CN4001	1-691-384-11	CONNECTOR, FFC	C/FPC 20P	L4507	1-469-524-91		4.7uH
			ARD TO BOARD 100P	L4508	1-469-524-91		4.7uH
		CONNECTOR, FFC		L4509	1-469-524-91		4.7uH
		CONNECTOR, FFC					
	1-766-350-21			L4510	1-469-524-91	INDUCTOR	4.7uH
				L4511	1-412-056-11	INDUCTOR	4.7uH
* CN4601	1-580-789-21	PIN, CONNECTOR	R (SMD) 6P	L4513	1-414-392-41	INDUCTOR	1uH
				L4514	1-412-056-11		4.7uH
		< DIODE >		L4515	1-469-524-91	INDUCTOR	4.7uH
D4001	8-710-062-16	DIODE 01ZA8.2(	TDI 3)	L4516	1-469-526-91	INDUCTOR	22uH
D4001		DIODE 01ZA8.2(		L4510 L4517	1-469-524-91		4.7uH
D4004		DIODE 01ZA8.2(		L4519	1-469-524-91		4.7uH
D4005		DIODE 01ZA8.2(		L4520	1-414-392-41		1uH
D4006		DIODE UDZSTE-		L4522	1-414-392-41		1uH
D4201		DIODE 1SV290(		L4601	1-412-056-11	INDUCTOR	4.7uH
D4502		DIODE 1SS383( DIODE 1SS383(				LINE FILTED .	
D4503 D4601		DIODE 155383( DIODE 01ZA8.2(				< LINE FILTER >	
D4601 D4602		DIODE 012A8.2(		I F4601	1-411-957-11	FILTER, COMMON	N MODE
D-1002	0 7 13 001 13	DIODE 100000(	101100N11)	LI 400 I	1 411 337 11	TILILIT, OOMINIO	VIVIODE
		< FUSE >				< TRANSISTOR >	
<b> £ F</b> 4601	1-576-406-21	FUSE, MICRO (1.4	4A/32\/) (1608)	Q4001	8-729-037-76	TRANSISTOR	RN1111F(TPL3)
<b> ∆</b> F4602		FUSE, MICRO (1.4		Q4003	8-729-049-92		2SC5585H-T2L
<b> ∆</b> F4603		FUSE, MICRO (1.4		Q4101	8-729-037-52		2SC4738F-Y/GR(TPL3)
<b> £</b> F4604		FUSE, MICRO (1.4		Q4102	8-729-037-61		RN2104F(TPL3)
<b> £ F 4605</b>		FUSE, MICRO (1.4		Q4103	8-729-053-52		N1C01FE-Y/GR(TPLR3)
		,	(TRV18/TRV18E/TRV118E)				,
				Q4301	8-729-921-51		2SD1834-T100
<b> ∆</b> F4606	1-576-406-21	FUSE, MICRO (1.4	4A/32V) (1608)	Q4303	8-729-054-51		RN2910FE(TPLR3)
				Q4304	8-729-042-29		RN1104F(TPL3)
		< FERRITE BEAD	>	Q4305	8-729-054-52		RN1910FE(TPLR3)
ED 44 04	1 400 070 00	FEDDITE	011	Q4306	8-729-037-63	TRANSISTOR	UN9115J-(K8).SO
	1-469-676-22 1-469-676-22		OuH	0.4207	8-729-054-52	TDANICICTOD	DN1010EE/TDLD2\
	1-409-076-22		OuH OuH	Q4307 Q4501	8-729-034-32		RN1910FE(TPLR3) CPH6102-TL-E
	1-469-676-22		OuH	Q4502	8-729-101-07		2SB798-T1-DLDK
1 04001	1 403 070 22	TERMINE	ouri	Q4503	8-729-046-98		CPH6702-TL-E
		< IC >		Q4504	8-729-037-53		2SA1832F-Y/GR(TPL3)
							,
IC4101	6-701-555-01			Q4505	8-729-046-98		CPH6702-TL-E
IC4201		IC CXA3289AR-		Q4506	8-729-044-33		CPH6701-TL-E
		IC CXD3501AR-		Q4507	8-729-053-52		N1C01FE-Y/GR(TPLR3)
IC4301	6-701-074-01	IC LA74207W-TI		Q4508 Q4509	8-729-046-98		CPH6702-TL-E
IC4401	0-759-079-11	IC BH/O/UAKV-I	-2	Q4309	8-729-044-33	THAINSISTUR	CPH6701-TL-E
IC4501	8-752-102-78	IC CXA3282R-T6	3	Q4510	8-729-046-98	TRANSISTOR	CPH6702-TL-E
IC4505	6-700-139-01	IC R1121N191B	-TL	Q4511	8-729-044-58	TRANSISTOR	SI2304DS-T1
				Q4512	8-729-044-58	TRANSISTOR	SI2304DS-T1
		< COIL >		Q4513	8-729-042-29	TRANSISTOR	RN1104F(TPL3)
				Q4514	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)
L4101	1-469-525-91		10uH	0.4545	0.700.007.50	TDANGIOTOD	00 4 4 00 0 E \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
L4102	1-469-525-91		10uH	Q4515	8-729-037-53		2SA1832F-Y/GR(TPL3)
L4201 L4202	1-469-525-91 1-469-891-21		10uH 6.8uH	Q4516 Q4517	8-729-053-52 8-729-037-52		N1C01FE-Y/GR(TPLR3) 2SC4738F-Y/GR(TPL3)
L4202 L4301	1-469-891-21		10uH	Q4517 Q4518	8-729-037-52		N1A01FE-Y/GR(TPLR3)
L <del>1</del> 001	1 703-020-31	INDUOTOIL	rouri	Q4518 Q4519	8-729-033-54		2SC4738F-Y/GR(TPL3)
L4401	1-469-528-91	INDUCTOR	100uH	2.3.0			
L4501	1-416-670-11		33uH	Q4520	8-729-053-54		N1A01FE-Y/GR(TPLR3)
L4502	1-416-669-11	INDUCTOR	22uH	Q4521	8-729-037-52		2SC4738F-Y/GR(TPL3)
L4503	1-416-669-11	INDUCTOR	22uH	Q4601	8-729-047-68		SSM3K03FE(TPL3)
L4504	1-416-669-11	INDUCTOR	22uH	Q4602	8-729-056-54		TPCS8302(TE12L)
				Q4603	8-729-804-41	TRANSISTOR	2SB1122-ST-TD

Note:
The components identified by mark ♠ or dotted line with mark ♠ are critical for safety.
Replace only with part number specified.

#### Note:

Note:
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

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Ref. No.	Part No.	Description				Ref. No.	Part No.	Description			
		<del></del>									
Q4604	8-729-042-29	TRANSISTOR	RN1104F			R4217	1-218-989-11	METAL CHIP	1M	0.5%	1/16W
Q4605	8-729-042-29	TRANSISTOR	RN1104F	` '		R4221	1-218-990-11	SHORT CHIP	0		
Q4606	8-729-037-61	TRANSISTOR	RN2104F	` '		R4222	1-218-990-11	SHORT CHIP	0		
					/TRV118E)	R4223	1-218-990-11		0		
Q4607	8-729-037-61	TRANSISTOR	RN2104F	(TPL3)		R4224	1-218-953-11	RES-CHIP	1K	5%	1/16W
Q4608	8-729-023-89	TRANSISTOR	2SJ305(T	E85L)							
			(TRV18	3/TRV18E	/TRV118E)	R4301	1-218-971-11	RES-CHIP	33K	5%	1/16W
			`		,	R4302	1-218-981-11	RES-CHIP	220K	5%	1/16W
Q4609	8-729-023-89	TRANSISTOR	2SJ305(T	E85L)		R4303	1-218-960-11	RES-CHIP	3.9K	5%	1/16W
Q4610	8-729-056-54	TRANSISTOR	TPCS8302	,		R4304	1-218-965-11	RES-CHIP	10K	5%	1/16W
					/TRV118E)	R4305	1-218-965-11	RES-CHIP	10K	5%	1/16W
Q4611	8-729-056-19	TRANSISTOR	TPC6101(		, , , , , , , , , , , , , , , , , , , ,		. 2.0 000			0,0	.,
α.σ	0.20.000.0				/TRV116E)	R4306	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
			(	,,	, , , , , , , , , , , , , , , , , , , ,	R4307	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
		< RESISTOR >				R4308	1-218-973-11	RES-CHIP	47K	5%	1/16W
		( TILOTOTOTOTO				R4309	1-218-973-11		47K	5%	1/16W
R4001	1-218-990-11	SHORT CHIP	0 (TRV18	/TR\/18E/	TR\/118F\	R4310	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4002	1-218-990-11	SHORT CHIP	0 (111010)	/ IIIV IOL/	IIIVIIOL)	114310	1-210-333-11	ILO-OIIII	IIX	J /0	1/1000
R4003	1-218-990-11	SHORT CHIP	0 (TRV18	/TD\/10E/	TD\/110E\	R4311	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4004	1-218-990-11	SHORT CHIP	0 (TRV18)			R4316	1-218-937-11	RES-CHIP	47	5%	1/16W
			`		,		1-218-937-11	RES-CHIP			1/16W
R4005	1-218-990-11	SHORT CHIP	0 (TRV18	/INVIOE/	INVIIOE)	R4317			47	5%	
D 4000	4 040 000 44	DEC CLUB	00	<b>5</b> 0/	4 44 00 44	R4318	1-218-937-11		47	5%	1/16W
R4009	1-218-939-11	RES-CHIP	68	5%	1/16W	R4319	1-218-937-11	RES-CHIP	47	5%	1/16W
R4010	1-218-959-11	RES-CHIP	3.3K	5%	1/16W						
R4011	1-216-017-91		47	5%	1/10W	R4401	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R4012	1-216-017-91		47	5%	1/10W	R4402	1-218-958-11	RES-CHIP	2.7K	5%	1/16W
R4013	1-218-990-11	SHORT CHIP	0			R4403	1-218-965-11	RES-CHIP	10K	5%	1/16W
						R4404	1-218-961-11		4.7K	5%	1/16W
R4101	1-218-961-11	RES-CHIP	4.7K	5%	1/16W	R4405	1-218-990-11	SHORT CHIP	0		
R4102	1-218-961-11	RES-CHIP	4.7K	5%	1/16W						
R4103	1-218-941-81	RES-CHIP	100	5%	1/16W	R4406	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R4104	1-218-981-11	RES-CHIP	220K	5%	1/16W	R4407	1-218-957-11	RES-CHIP	2.2K	5%	1/16W
R4105	1-218-953-11	RES-CHIP	1K	5%	1/16W	R4408	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
						R4409	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
R4106	1-218-953-11	RES-CHIP	1K	5%	1/16W	R4410	1-218-953-11		1K	5%	1/16W
R4107	1-208-715-11	METAL CHIP	22K	0.5%	1/16W					- / -	.,
R4108	1-218-953-11	RES-CHIP	1K	5%	1/16W	R4411	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4109	1-218-953-11	RES-CHIP	1K	5%	1/16W	R4415	1-218-969-11	RES-CHIP	22K	5%	1/16W
R4110	1-218-965-11	RES-CHIP	10K	5%	1/16W	R4417	1-218-969-11	RES-CHIP	22K	5%	1/16W
114110	1 210 303 11	TILO OTTI	1010	<b>3</b> 70	1/1000	R4418	1-218-973-11	RES-CHIP	47K	5%	1/16W
R4111	1-218-957-11	RES-CHIP	2.2K	5%	1/16W	R4419	1-218-973-11		47K	5%	1/16W
R4112	1-218-935-11	RES-CHIP	33	5%	1/16W	114413	1-210-373-11	ILO-0IIII	7/10	J /0	1/1000
R4113	1-218-935-11		33	5%	1/16W	R4420	1-218-966-11	DEC-CHID	12K	5%	1/16W
R4113				5% 5%	1/16W			RES-CHIP	12K 12K		
	1-218-935-11		33			R4421	1-218-966-11 1-218-990-11	SHORT CHIP		5%	1/16W
R4115	1-218-935-11	RES-CHIP	33	5%	1/16W	R4422			0	E0/	1/16///
D4446	4 040 005 44	DEC OUID	00	F0/	4 /4 CW/	R4423	1-218-965-11		10K	5%	1/16W
R4116	1-218-935-11		33	5%	1/16W	R4424	1-218-966-11	KES-CHIP	12K	5%	1/16W
R4117	1-218-935-11	RES-CHIP	33	5%	1/16W	D 4 405	1 010 077 11	DEO OLUB	40016	F0/	4 /4 0 14 /
R4118	1-218-953-11		1K	5%	1/16W	R4425	1-218-977-11		100K	5%	1/16W
R4119	1-218-953-11		1K	5%	1/16W	R4427	1-218-959-11	RES-CHIP	3.3K	5%	1/16W
R4120	1-218-953-11	RES-CHIP	1K	5%	1/16W	R4430	1-218-990-11	SHORT CHIP	0	0.50/	4 (4 0) 14
						R4501	1-208-715-11		22K	0.5%	1/16W
R4121	1-218-953-11		1K	5%	1/16W	R4502	1-218-971-11	RES-CHIP	33K	5%	1/16W
R4201	1-218-985-11	RES-CHIP	470K	5%	1/16W						
R4202	1-208-935-11	METAL CHIP	100K	0.5%	1/16W	R4503	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
R4203	1-218-990-11	SHORT CHIP	0			R4504	1-218-985-11	METAL CHIP	470K	0.5%	1/16W
R4205	1-218-958-11	RES-CHIP	2.7K	5%	1/16W	R4505	1-218-990-11	SHORT CHIP	0		
						R4506	1-218-967-11	RES-CHIP	15K	5%	1/16W
R4206	1-218-973-11	RES-CHIP	47K	5%	1/16W	R4507	1-218-965-11	RES-CHIP	10K	5%	1/16W
R4207	1-218-975-11	RES-CHIP	68K	5%	1/16W						
R4208	1-218-969-11	RES-CHIP	22K	5%	1/16W	R4508	1-208-935-11	METAL CHIP	100K	0.5%	1/16W
R4209	1-218-975-11		68K	5%	1/16W	R4509	1-216-864-11	METAL CHIP	0	5%	1/16W
R4210	1-218-989-11	RES-CHIP	1M	5%	1/16W	R4510	1-218-990-11	SHORT CHIP	0	0,0	.,
	0 000 11	0 31111		5 /0	.,	R4511	1-218-969-11		22K	5%	1/16W
R4211	1-218-977-11	RES-CHIP	100K	5%	1/16W	R4512	1-218-961-11		4.7K	5%	1/16W
R4211	1-218-941-81		1000	5%	1/16W	117012	7 2 10 30 I-11	TILO OTTI	T./ IX	J /0	1/ 1000
R4212 R4213	1-218-941-81		100	5% 5%	1/16W	R4513	1-218-990-11	спорт спір	0		
R4213 R4214	1-218-941-81			5% 5%	1/16W					E0/	1/16W
			100			R4514	1-218-961-11		4.7K	5%	
R4216	1-208-927-11	METAL CHIP	47K	0.5%	1/16W	R4515	1-208-713-11	METAL CHIP	18K	0.5%	1/16W
						R4517	1-218-990-11		0	E0/	4/4014
						R4518	1-218-971-11	KES-CHIP	33K	5%	1/16W

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Ref. No.	Part No.	<u>Description</u>			
R4519	1-218-969-11	RES-CHIP	22K	5%	1/16W
R4520	1-218-965-11	RES-CHIP	10K	5%	1/16W
R4521	1-218-990-11	SHORT CHIP	0	<b>5</b> 0/	4 (4 0) 14
R4524	1-218-973-11	RES-CHIP	47K	5%	1/16W
R4525	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R4526	1-218-970-11	METAL CHIP	27K	0.5%	1/16W
R4527	1-208-720-11	METAL CHIP	36K	0.5%	1/16W
R4528	1-218-973-11	RES-CHIP	47K	5%	1/16W
R4529	1-218-969-11	RES-CHIP	22K	5%	1/16W
R4531	1-218-973-11	RES-CHIP	47K	5%	1/16W
D4E20	1 010 077 11	DEC CHID	1001/	5%	1/1CW
R4532 R4533	1-218-977-11 1-218-969-11	RES-CHIP RES-CHIP	100K 22K	5%	1/16W 1/16W
R4534	1-218-909-11	METAL CHIP	100K	0.5%	1/16W
R4535	1-208-927-11	METAL CHIP	47K	0.5%	1/16W
R4536	1-208-711-11	METAL CHIP	15K	0.5%	1/16W
114000	1 200 711 11	WEIZE OTH	1010	0.0 /0	1/1000
R4537	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4538	1-218-969-11	RES-CHIP	22K	5%	1/16W
R4539	1-208-935-11	METAL CHIP	100K	0.5%	1/16W
R4540	1-218-967-11	RES-CHIP	15K	5%	1/16W
R4541	1-208-943-11	METAL CHIP	220K	0.5%	1/16W
R4542	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4543	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4544	1-218-961-11	RES-CHIP	4.7K	5%	1/16W
R4545	1-208-943-11	METAL CHIP	220K	0.5%	1/16W
R4546	1-208-931-11	METAL CHIP	68K	0.5%	1/16W
R4550	1-208-699-11	METAL CHIP	4.7K	0.5%	1/16W
R4551	1-208-927-11	METAL CHIP	47K	0.5%	1/16W
R4552	1-208-711-11	METAL CHIP	15K	0.5%	1/16W
R4554	1-218-990-11	SHORT CHIP	0	0.070	.,
R4601	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4604	1-218-977-11	RES-CHIP	100K	5%	1/16W
R4605	1-218-989-11	RES-CHIP	1M	5%	1/16W
R4607	1-216-797-11	METAL CHIP	10	5%	1/16W
R4608	1-218-953-11	RES-CHIP	1K	5%	1/16W
R4609	1-218-963-11	RES-CHIP	6.8K	5%	1/16W
R4610	1-218-973-11	RES-CHIP	47K	5%	1/16W
					TRV118E)
R4611	1-218-973-11	RES-CHIP	47K	5%	1/16W
R4612	1-218-941-81	RES-CHIP	100	5%	1/16W
			(TRV18/	TRV18E/	TRV118E)
R4613	1-218-989-11	RES-CHIP	1M	5%	1/16W
					TRV118E)
R4614	1-218-941-81	RES-CHIP	100	5%	1/16W
R4615	1-218-989-11	RES-CHIP	1M	5%	1/16W
R4617	1-218-953-11	RES-CHIP	1K	5%	1/16W
	. 2.0 000 71				TRV118E)
R4618	1-218-953-11	RES-CHIP	1K	5%	1/16W
<del>-</del>		-			TRV118E)
			, ,,		- /
		< TRANSFORMER	۲>		

Ref. No.	Part No.	Description
	A-7078-154-A	VC-280 (F) BOARD, COMPLETE (SERVICE) (TRV18/TRV18E:E,HK,AUS,CH,JE/TRV118E) ************************************
	A-7078-277-A	VC-280 (0) BOARD, COMPLETE (SERVICE) (TRV16E:AEP,UK,EE,NE) ************************************
	A-7078-278-A	VC-280 BOARD, COMPLETE (SERVICE) (TRV16/TRV16E:E,HK,AUS,CH/TRV116E) ************************************
	A-7078-279-A	VC-280 (FO) BOARD, COMPLETE (SERVICE) (TRV18E:AEP,UK,EE,NE) ************************************

Electrical parts list of the VC-280 board are not shown. Pages from 6-19 to 6-24 are not shown.

△T4501 1-435-252-21 TRANSFORMER, DC-DC CONVERTER

The components identified by  $\text{mark} \, \triangle \, \text{or dotted line with mark}$  ${\it \triangle}$  are critical for safety. Replace only with part number specified.

#### Note:

Les composants identifiés par une marque  $\ensuremath{\Lambda}$  sont critiques pour la sécurité.

Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1.01. 140.	<u> </u>		<u>1161. 110.</u>		CORD, POWER (TRV16:KR/TRV18:KR)
			<u>A</u>		CORD, POWER (TRV16E:CH/TRV18E:CH)
			$\triangle$	1-783-374-11	CORD, POWER
					(TRV16:HK/TRV16E:UK,HK/TRV116E:UK/ TRV18:HKTRV18E:UK,HKTRV118E:UK)
			<u> </u>	1-790-107-22	CORD, POWER (TRV18:US,CND)
			<b>A</b>		CORD, POWER (TRV18:JE/TRV18E:JE)
				1-824-097-11	CORD, CONNECTION (AV CABLE) (1.5m)
					SPVD-008 (CD-ROM USE DRIVER)
					(TRV16/TRV16E/TRV116E/TRV18:E,HK,JE,KR/
				3-072-654-01	TRV18E/TRV118E) SPVD-008 (I) (CD-ROM USE DRIVER)
					(TRV18:US,CND)
				3-073-855-11	MANUAL, INSTRUCTION (ENGLISH) (TRV16:E,HK/TRV18:US,CND,E,HK,JE)
				3-073-855-21	MANUAL, INSTRUCTION (FRENCH)
					(TRV18:CND)
				3-073-855-31	MANUAL, INSTRUCTION
					(SPANISH/PORTUGUESE) (TRV16:E/TRV18:E,JE)
					MANUAL, INSTRUCTION RADITIONAL CHINESE) (TRV16:E,HK/TRV18:E,HK)
					MANUAL, INSTRUCTION (KOREAN)
				3-073-855-61	(TRV16:KR/TRV18:JE,KR) MANUAL, INSTRUCTION (ARABIC)
				3-073-033-01	(TRV16:E/TRV18:E)
					MANUAL, INSTRUCTION (ENGLISH/RUSSIAN)
				(11	RV16E:UK/TRV116E:UK/TRV18E:UK/TRV118E:UK)
					MANUAL, INSTRUCTION (FRENCH/GERMAN)
				,	SE:AEP/TRV116E:AEP/TRV18E:AEP/TRV118E:AEP)  MANUAL, INSTRUCTION (ENGLISH/DUTCH)
					SE:AEP/TRV116E:AEP/TRV18E:AEP/TRV118E:AEP)
				3-075-067-41	MANUAL, INSTRUCTION
					(SPANISH/PORTUGUESE) (TRV16E:AEP/ TRV116E:AEP/TRV18E:AEP/TRV118E:AEP)
					MANUAL, INSTRUCTION (ITALIAN/GREEK)
				,	SE:AEP/TRV116E:AEP/TRV18E:AEP/TRV118E:AEP)  MANUAL, INSTRUCTION (ENGLISH/SWEDISH)
		ACCESSORIES			RV16E:NE/TRV116E:NE/TRV18E:NE/TRV118E:NE)
		******		0.075.007.71	MANUAL INCTRUCTION (DANICH/FINNICH)
	1-475-141-61	REMOTE COMMANDER (RMT-814)			MANUAL, INSTRUCTION (DANISH/FINNISH) RV16E:NE/TRV116E:NE/TRV18E:NE/TRV118E:NE)
$\triangle$		ADAPTOR, AC (AC-L10)		,	MANUAL, INSTRUCTION (ENGLISH/RUSSIAN)
		(TRV16:E,HK/TRV16E:AEP,UK,EE,NE,E,HK,AUS/ TRV116E/TRV18:US,CND,E,HK,JE/		3-075-068-21	(TRV16E:E,HK,AUS,CH/TRV18E:E,HK,AUS,CH,JE) MANUAL, INSTRUCTION (FRENCH/GERMAN)
		TRV18E:AEP,UK,EE,NE,E,HK,AUS,JE/TRV118E)		3-073-000-21	(TRV16E:E/TRV18E:E,JE)
<u>^</u>		ADAPTOR, AC (AC-L10) (TRV16:KR/TRV18:KR)		3-075-068-31	MANUAL, INSTRUCTION (ARABIC/PERSIAN)
<b>A</b>	1-4/5-599-81	ADAPTOR, AC (AC-L10) (TRV16E:CH/TRV18E:CH)		3-075-068-41	(TRV16E:E/TRV18E:E) MANUAL, INSTRUCTION
	1-569-007-11	ADAPTOR, CONVERSION 2P			RADITIONAL CHINESE) (TRV16E:HK/TRV18E:HK)
		(TRV18:JE/TRV18E:JE)		3-075-068-51	MANUAL, INSTRUCTION
	1-569-008-21	ADAPTOR, CONVERSION 2P			LIFIED CHINESE) (TRV16E:E,CH/TRV18E:E,CH,JE)
	,	V16:E,HK/TRV16E:E, HK/TRV18:E,HK/TRV18E:HK)			LID, BATTERY CASE (FOR RMT-814)
	1-5/3-291-11	CONNECTOR, CONVERSION 21P (TRV16E:AEP,UK,EE,NE/TRV116E/			BELT (S), SHOULDER MEMORY STICK (MSA-8A)
		TRV18E:AEP,UK,EE,NE/TRV118E)			(TRV18/TRV18E/TRV118E)
$\triangle$		CORD, POWER (TRV16E:AUS/TRV18E:AUS) CORD, CONNECTION (USB 5P)		X-3950-537-1	CAP ASSY, LENS
$\triangle$		CORD, POWER			NP-FM30 BATTERY PACK (NOT SUPPLIED)
	,	RV16:E/TRV16E:AEP,EE,NE,E/TRV116E:AEP,EE,NE/			NP-FM50 BATTERY PACK (NOT SUPPLIED)
	Į į	RV18:E/TRV18E:AEP,EE,NE,E/TRV118E:AEP,EE,NE)			

Note	1
Tho	_

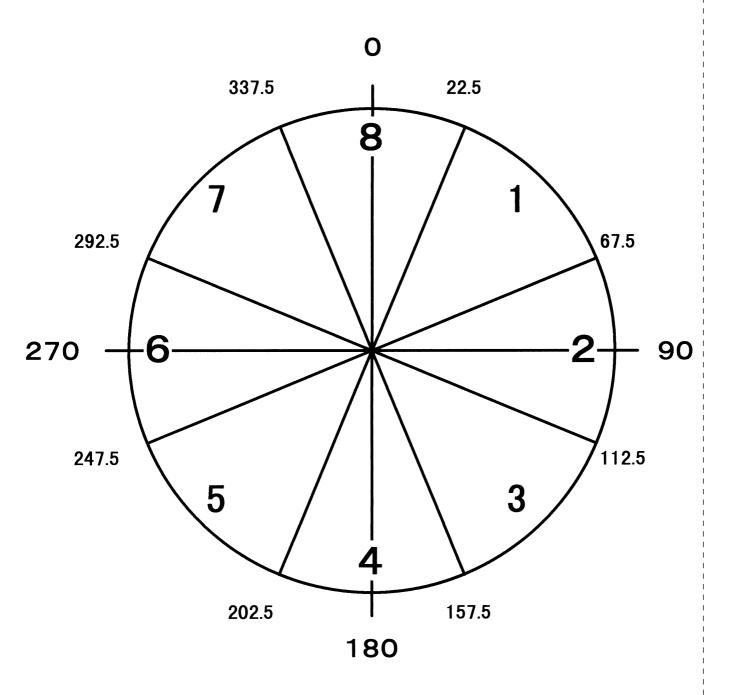
The components identified by mark  $\triangle$  or dotted line with mark  $\triangle$  are critical for safety.

Replace only with part number specified.

## Note:

Les composants identifiés par une marque  $\triangle$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

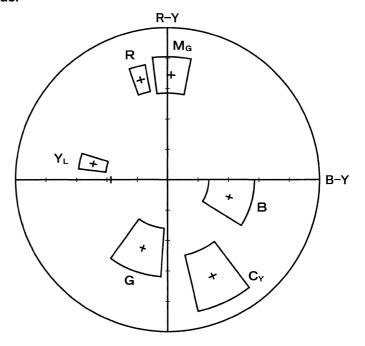
**(OPTICAL AXIS FRAME)** 



Take a copy of OPTICAL AXIS FRAME with a clear sheet for use.

## **(FOR CAMERA COLOR REPRODUCTION ADJUSTMENT)**

#### For NTSC model

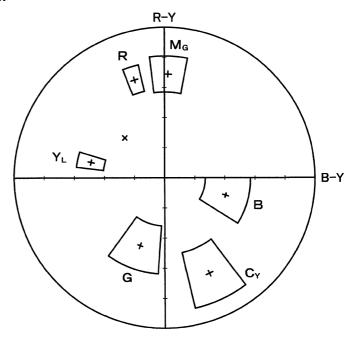


DCR-TRV16/TRV18

Take a copy of CAMERA COLOR REPRODUCTION FRAME with a clear sheet for use.



#### For PAL model



DCR-TRV16E/TRV18E/TRV116E/TRV118E





## **Revision History**

Ver.	Date	History	Contents	S.M. Rev.
1.0	2002.03	Official Release	_	_

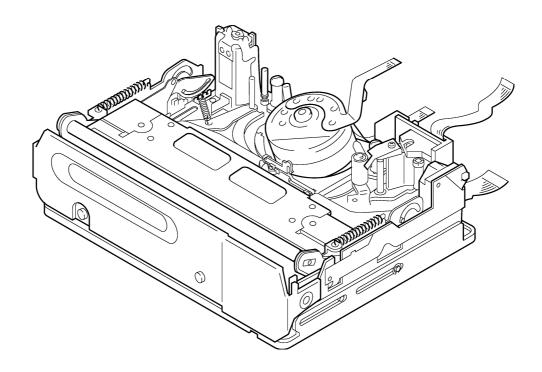
# DV MECHANICAL ADJUSTMENT MANUAL VI

Ver 1.0 2000.3

## **J MECHANISM**



Please use this manual with the service manual of the respective models.



Digital MECHANISM DECK



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## 1. Preparations for Check, Adjustment and Replacement of Mechanism Block

- Refer to the "DISASSEMBLY" section of the SERVICE MANUAL of the respective models for details of removing cabinets and
  printed wiring boards.
- When making any adjustment to a mechanism or replacing mechanical parts, be sure to use the Mode Selector II and select the appropriate status of the mechanical deck such that the mechanical status is suitable for the desired work. Refer to section "2-5. Mode Selector II" for details on how to enter the mode shown in a rectangle \_\_\_\_\_ mode in subsequent paragraphs of this manual.

### 1-1. Cassette Compartment Assy, Damper Assy

#### 1. Removal Procedure

- 1) Set the EJ mode.
- When the cassette compartment moves up in the direction of the arrow 
   B, establish the ULE mode.
- 3 Release the two claws ① and dowel of the damper assy and remove the damper assy.
- 4) Remove the shaft of the holder arm from the damper arm.
- 5) Remove the two screws  $(M1.4 \times 2)$  ②.
- 6) Lift up the LS frame in the direction of the arrow ©.
- 7) Lift up the cassette compartment block assy in the direction of the arrow **(a)**. While pushing the holder arm in the direction of the inside arrow **(a)**, remove the cassette compartment block assy.

#### 2. Attachment procedure

- 1) Set the ULE mode.
- Attach the holder arm of the cassette compartment block assy to the cassette compartment slide shaft on both sides of the LS chassis block assy from inside.
- 3) Install the LS frame pivot into the groove **(a)** of the LS chassis. Drop down the LS frame in the direction opposite to **(a)**.
- Hook the LS frame T-side bent portion on the LS chassis notch
   F.
- 5) Attach the LS frame with two screws (M1.4  $\times$  2) ②. Tightening torque:  $0.054 \pm 0.01$  N•m (0.6 kg•cm).
- 6) While inserting the damper shaft of the cassette compartment block assy into slot of the damper arm, engage the two claws ① with the notch of the LS chassis block assy, and fix the dowel to the corresponding hole of the LS chassis block assy respectively.

**Note:** Check that the two claws ① and dowel do not come off.

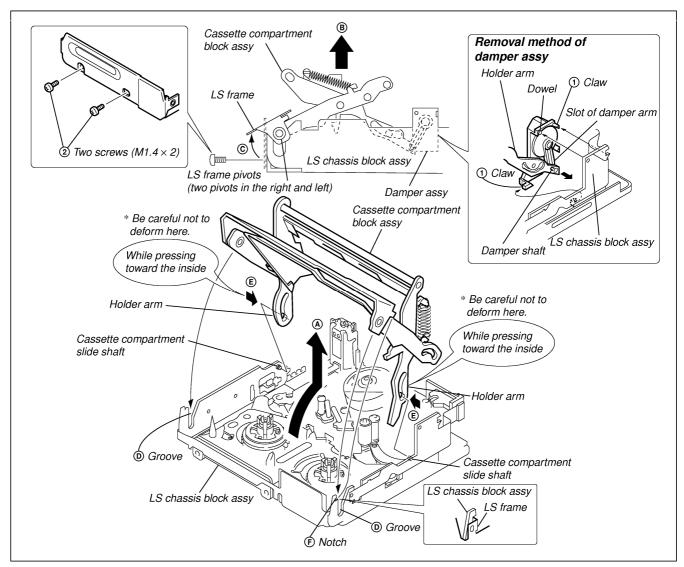


Fig. 1-1

## 2. Periodic Inspection and Maintenance

Be sure to perform the following maintenance and inspection so
that the machine delivers its full performance and functions, and
to protect the machine and tape. Also, perform the following
maintenance items after completing the repair work, regardless
of the number of hours the machine has been operated by the
user.

## 2-1. Rotary Drum Cleaning

 Press a wiping cloth (Ref. No. J-2) moistened with cleaning fluid (Ref. No. J-1) lightly against the rotary drum. Rotate the upper drum with a super-fine applicator slowly in the counterclockwise direction to clean the rotary drum.

Caution: Never rotate the rotary drum by turning on the main power of the motor or rotate it in the clockwise direction. Never move the cloth vertically against the head tip, as this will surely damage the video head; the video head must not be cleaned by any other different methods.

## 2-2. Tape Path System Cleaning (Refer to Fig. 2-1.)

1) Set the EJECT state. Clean the tape running path (TG-1, -2, -3, -4, -5, -6 and -7, pinch roller and capstan shaft) and lower drum with a super-fine applicator (Ref. J-3) moistened with cleaning fluid.

**Note 1:** Be careful not to allow oil or grease of the various link mechanisms to get on the super-fine applicator (Ref. J-3).

**Note 2:** Once the super-fine applicator has been moistened with alcohol, do not use it to clean other mechanical parts such as the tape guide. However, the pinch roller is cleaned with alcohol.

**Note 3:** When cleaning the capstan shaft, be carefull not to move the oil seal. If the oil seal is moved, oil will leak.

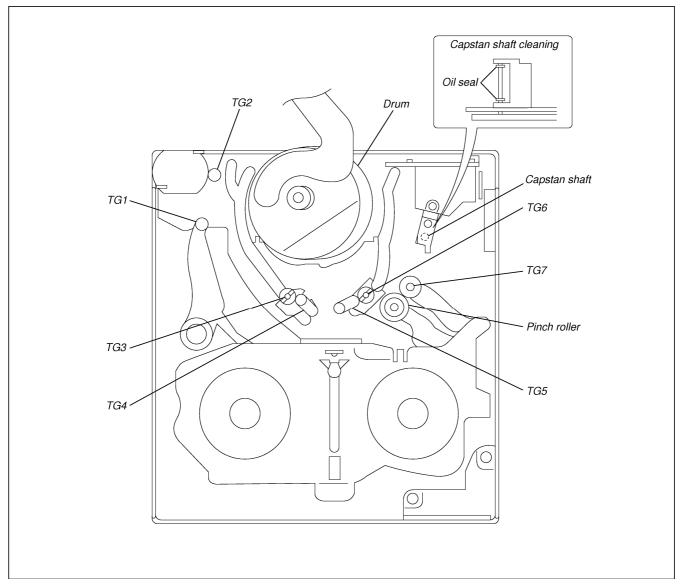


Fig. 2-1

## 2-3. Periodic Inspection List

Ma	intenance and inencation item		Operating hours (H)									Remarks
IVIA	intenance and inspection item	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	neiliaiks
	Tape running surface cleaning	0	0	0	0	0	0	0	0	0	0	Be careful not to attach oil
	Rotary drum cleaning and degaussing	0	0	0	0	0	0	0	0	0	0	Be careful not to attach oil
aj. Ke	Capstan bearing	_	☆	_	☆	_	☆	_	☆	_	☆	
Drive mechanism	Loading motor	_	☆	_	☆	_	☆	_	☆	_	☆	
check	Abnormal sound	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Back-tension measurement	_	☆	_	☆	_	☆	_	☆	_	☆	
ance	Brake system	_	☆	_	☆	_	☆	_	☆		☆	
Performan	Brake system	_	☆	_	☆	_	☆	_	☆	_	☆	
<u> </u>	FWD/RVS torque measurement		☆	_	☆		☆	_	☆	_	☆	

O: Cleaning, ☆: Check

**Note 1:** When the machine is overhauled, replace the parts referring to the

#### Note 2: Grease

- Be sure to use the specified grease only. (If grease of different viscosity is used, it can cause various troubles.)
- The grease used for bearings must not contain any dust or other matter, otherwise excessive abrasion and seizure of the bearing could occur.
- A drop of grease means the amount of grease as shown in the illustration, which is the amount that is attracted to the tip of a rod of 2 mm diameter.
- FLOIL grease (SG-941): Part No. 7-662-001-39

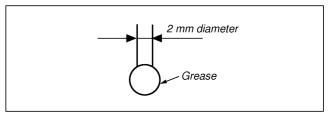


Fig. 2-2

## 2-4. Service Jigs and Tools

Ref. No.	Name	Part code	Jig inscription	Used for
J-1	Cleaning fluid	Y-2031-001-0		
J-2	Wiping cloth	7-741-900-53		
J-3	Super-fine applicator (made by Nippon Applicator (P752D))	_		
J-4	Mirror (small oval type)	Tape path		
J-5	Tracking tape (XH2-1) (NTSC, PAL)	8-967-997-01		Tape path
J-6	Mini DV torque cassette	J-6082-360-A		
J-7	TG1 adjustment jig (FWD position adjustment)	J-6082-492-A		
J-8	TG1 FWD adjustment screwdriver	J-6082-364-A		For TG1 FWD position adjustment
J-9	Dummy drum (for TG36) (J mechanism)	J-6082-490-A		
J-10	TG36 gauge	J-6082-491-A		
J-11	Torque screwdriver	J-9049-330-A		
J-12	Tape path screwdriver	J-6082-026-A		For tape path adjustment
J-13	Adjustment remote commander (RM-95 upgraded) * Note 1	J-6082-053-B		
J-14	Mode Selector II	J-6082-282-B		General adjustment (ROM version 1.7)
J-15	Mode Selector II conversion board (J)	J-6082-493-A		
J-16	Mode Selector II ROM (supporting J mechanism) * Note 2	J-6082-314-E		ROM for Mode Selector II

#### Other required equipment: Oscilloscope

**Note 1:** If the microprocessor in the adjustment remote commander is not the new one (UPD7503G-C56-12), the pages cannot be switched. In this case, replace it with the new microprocessor (8-759-148-35).

**Note 2:** This is the ROM used for upgrading the version of Mode Selector II to enable it to be used for the J mechanism.

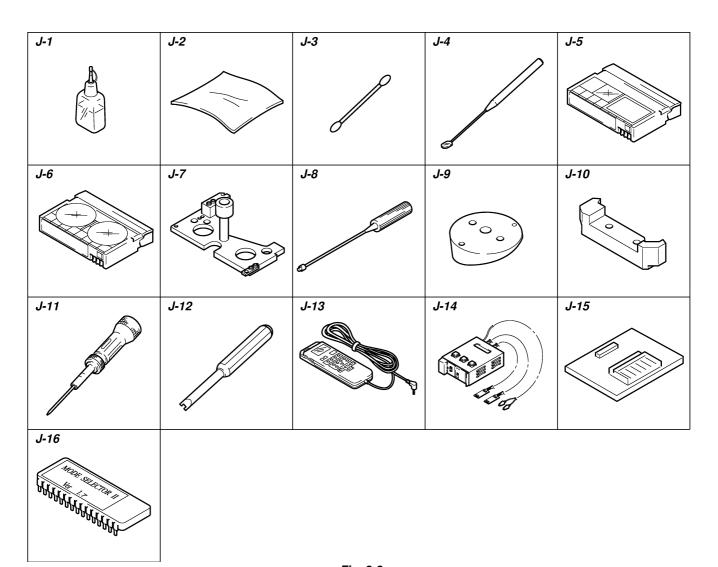


Fig. 2-3

## 2-5. Mode Selector II Operating Procedure

#### 2-5-1. Introduction

The Mode Selector II is a mechanism drive tool that assists maintenance work of the various mechanism decks. It has the following functions.

#### 1. Manual Test

In this mode, the motor of the mechanism deck is powered only during the period while the switch is turned on manually. Using the Manual Test, the operator can freely control the motor of the mechanism deck.

#### 2. Step Test

In this mode, the motor of the mechanism deck is kept turned on until the mechanical status is changed from the present mechanical status that is obtained from the sensor information. The Step Test is used to confirm a series of movements of the mechanism deck.

#### 3. Auto Test

The Mode Selector II stores the status transition table in its memory as data indicating the respective modes of the mechanism deck. The status transition table can be used to confirm whether a mechanism deck is operating normally or has abnormality from a series of movements of a mechanism deck. If an abnormal status transition is detected during operation, the "NG" indication appears and the mechanism stops moving.

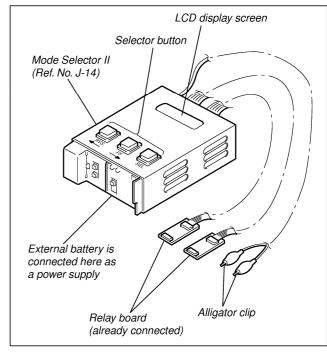


Fig. 2-4

#### Mode Selector II (J-6082-282-B) connection diagram

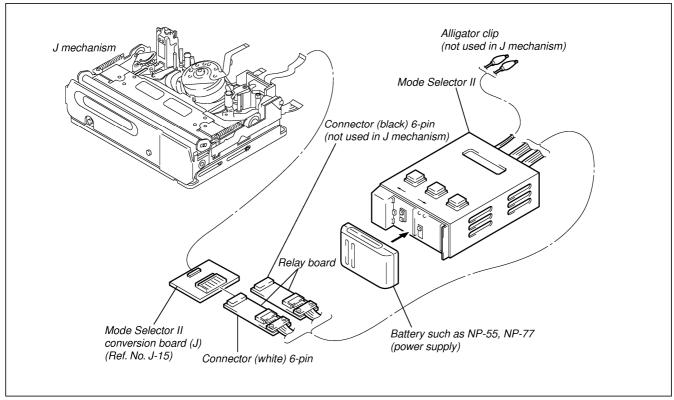
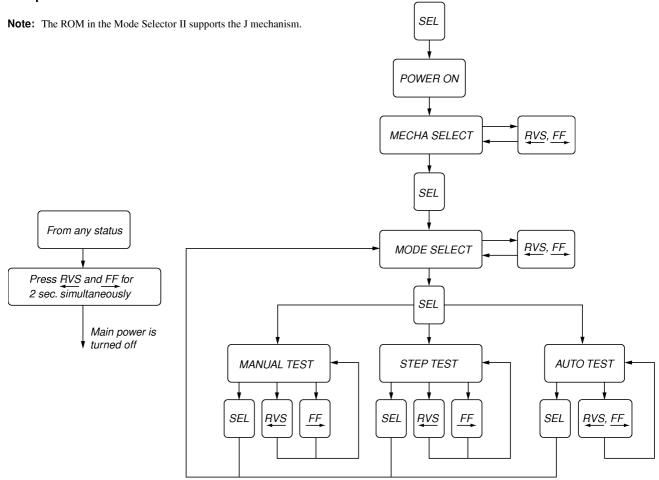


Fig. 2-5

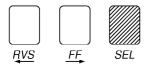
#### 2-5-2. Operation

#### 1. Operation Flow Chart



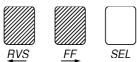
#### 2. Mode Selector II Power On

Turn on the main power of the Mode Selector II as follows. Press the SEL button.



#### 3. Mode Selector II Power Off

Turn off the main power of the Mode Selector II as follows. Press the RVS and FF buttons at the same time for 2 seconds or longer while the power is on.



#### 4. Mecha Select

When the main power is turned on, the MECHA SELECT display appears on the LCD screen. Select the desired mechanism name using the RVS and FF buttons. Selection is complete when the SEL button is pressed. (Fig. A shows the J mechanism.)

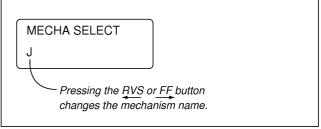


Fig. a

#### 5. Test Type Select

Using the RVS and FF buttons, select a desired test type from the three types of "MANUAL", "STEP" and "AUTO". Selection is complete when the SEL button is pressed.

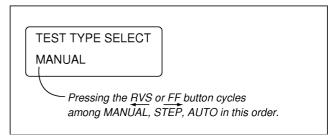


Fig. b

#### 6. Manual Test

In this test, the motor of the mechanism deck is turned on only during the period while the RVS or FF button is pressed manually.

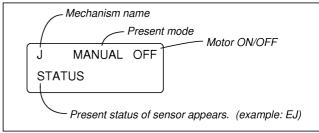


Fig. c

#### 7. Step Test

In this test, the direction of motor movement is determined by the RVS and FF buttons. The motor of the mechanism deck is kept turned on until the mechanical status is changed from the present mechanical status that is obtained from the sensor information.

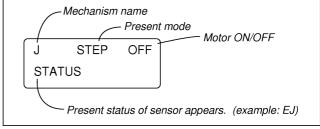


Fig. d

#### 8. Auto Test

In this test, the mechanism deck is tested as to whether it performs a series of movements correctly in accordance with the operation sequence that is memorized earlier for each type of deck, by checking the output signals from sensors with the stored memory. Turning on the  $\underline{RVS}$  or  $\underline{FF}$  button performs the same operation.

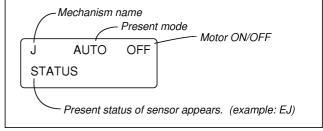


Fig. e

#### 2-5-3. Mechanism Status (Position) Transition Table Using Mode Selector II

After selecting a mechanism deck, select either the MANUAL or STEP test (not AUTO) using the Mode Selector II. The desired mechanism status (position) can be specified by pressing the RVS or FF button. (The selected status appears on STATUS.)

 $EJ \leftarrow ULE \leftarrow SR \leftarrow GL \leftarrow STOP \leftarrow RP$ 

MD name Code				J Mechanism
Α	В	С		
0	0	1	1	EJ
1	0	1	2	ULE
1	0	0	3	SR
1	1	0	4	GL
0	1	0	5	STOP
0	1	1	6	RP

### 2-5-4. Battery Alarm Indication

When the level of the battery used to supply power to this system decreases, this display appears asynchronously. When this happens, all operations are disabled and the battery must be replaced.

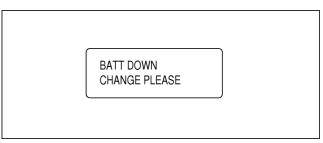


Fig. f

## 3. Check, Adjustment and Replacement of Mechanical Parts

### 3-1. Drum

#### 1. Removal procedure

1) Loosen the three screws  $(M1.4 \times 2)$  ① fixing the drum and remove the drum.

- Align the two reference holes A and B on the rear of the drum with the position setting reference pins A and B of the drum base assy.
- 2) Install the drum with the three screws (M1.4×2) ① and tighten the screws in order from ②, then ③ and finally ②.

  Tightening torque: 0.059 ± 0.01 N•m (0.6 kg•cm)
- 3) Clean the drum referring to section 2-1.
- 4) Perform the tape path adjustment. (Refer to section 4, "Tape Path Adjustment".)

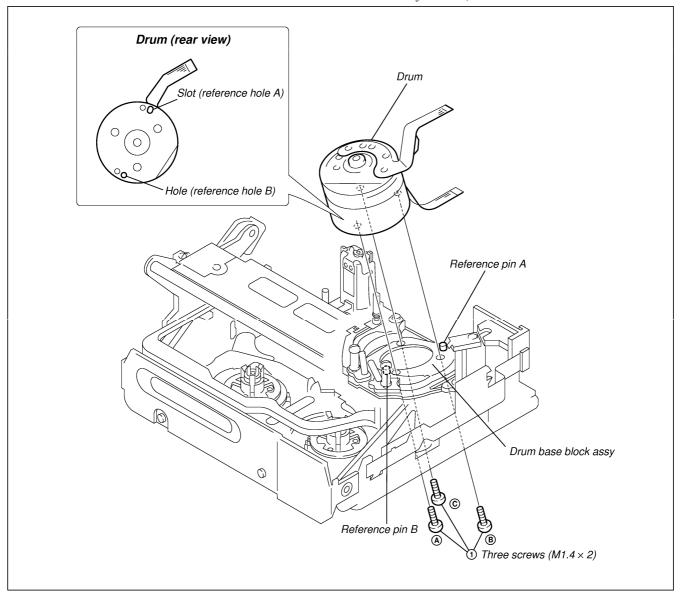


Fig.3-1

## 3-2. L. Motor Holder Block Assy (Loading) and FP-228 Flexible Wiring Board (DEW Sensor)

#### 1. Removal procedure

- 1) Remove soldering ② from the L motor holder block assy (loading). Remove the FP-100 flexible wiring board.
- 2) Remove soldering ③ from the flexible wiring board FP-100. Remove the FP-228 flexible wiring board (DEW sensor).

**Note:** Since the FP-228 flexible wiring board (DEW sensor) is attached to the motor shield by adhesive agent, be careful not to break the flexible board when removing soldering.

- 3) Remove the screw  $(M1.4 \times 2.5)$  ①.
- 4) Remove the L motor holder block assy.
- 5) Unlock the claw **(E)** and remove the worm shaft.
- 6) Remove the motor shield.
- Unlock the two claws (a) of the motor holder. Remove the L motor block assy (loading) in the direction of (b).

Note: Be careful not to touch the DEW sensor.

- Check the direction of the polarity marking © of the L motor block assy (loading). Attach the L motor block assy (loading) to the motor holder so that the L motor block assy (loading) faces the worm shaft side.
- While aligning the slot and dowel with the motor shield, attach the motor holder to the motor holder.
- 3) Apply grease (1/2 drop) between the worm shaft gear and gear tooth.
- 4) While the worm gear is engaged with the worm shaft gear, insert the worm shaft tip into the groove (B) and fix the worm shaft under the claw (E).
- 5) While aligning the chassis's two square holes with the two round holes, attach the motor holder block assy with the screw (M1.4  $\times$  2.5) ①.
  - Tightening torque:  $0.059 \pm 0.01 \text{ N} \cdot \text{m} (0.6 \text{ kg} \cdot \text{cm})$
- 6) Connect FP-228 (DEW sensor) to the FP-100 flexible wiring board by soldering. Attach the DEW sensor to the motor shield.
- 7) Connect the FP-100 flexible wiring board to the motor holder block assy (loading) by soldering.

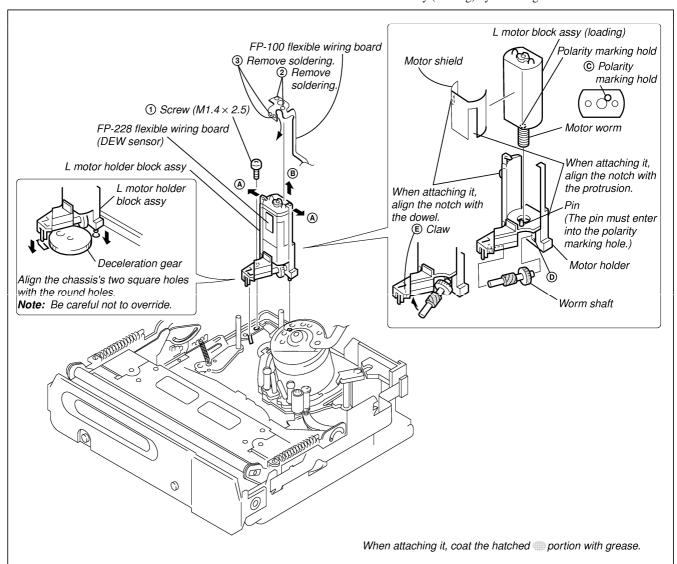


Fig. 3-2

### 3-3. Retainer Plate Assy, LED Retainer

#### 1. Removal procedure

- 1) While pressing the claw of the LED retainer in the direction of the arrow (a), remove the LED retainer.
- 2) Remove the LED portion ② of the FP-102 flexible wiring board
- 3) Remove the two screws  $(M1.4 \times 1.4)$  ①.
- 4) In order to remove the retainer plate assy, because it is hooked with shaft A, shaft B and shaft C, remove the retainer plate assy while moving it in the direction of the arrow (a).

- 1) Hook shaft A, shaft B and shaft C on notch A, notch B and notch C of the retainer plate assy in this order.
- 2) Attach the retainer plate assy with two screws (M1.4×1.4) ①. Tightening torque:  $0.059 \pm 0.01 \text{ N} \cdot \text{m}$  (0.6 kg·cm)
- 3) Route the FP-102 flexible wiring board as shown and install the LED into the prism as shown.
- 4) Hook the LED retainer on **(D)**, attach it to **(E)** and fix them.

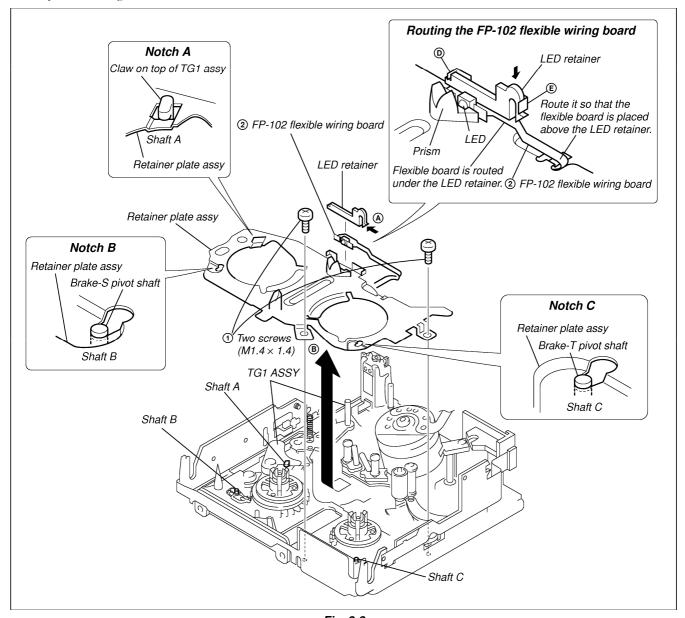


Fig. 3-3

## 3-4. Brake-T Block Assy, T-reel Table Assy, Gooseneck Gear Assy

#### 1. Removal procedure

- 1) Remove the brake-T block assy from the brake-T pivot shaft.
- 2) While pressing the reel claw retainer (A) of the T-reel table assy down in the direction of (B), remove the reel claw (C).
- 3) Remove the gooseneck assy from the relay gear shaft.

**Note:** Be careful not to break the reel claw.

#### 2. Attachment procedure

- Insert the gooseneck gear assy into the center hole of the relay gear shaft. Bend the gooseneck gear assy to the S-reel table assy side.
- 2) Attach the brake-T block assy to the brake-T pivot shaft **①**.
- Move the brake-T counter-clockwise so that T-brake is freed. While pressing down the reel claw of the T-reel assy, fix the T-reel to the reel shaft-T by rotating the reel.
- Check that the brake spring-T works correctly by rotating the T-reel table assy 30 degrees in the clockwise and counterclockwise directions.

**Note:** The retainer on top of the brake spring-T must be hooked on the brake-T pivot shaft **(a)** and moved down to the groove.

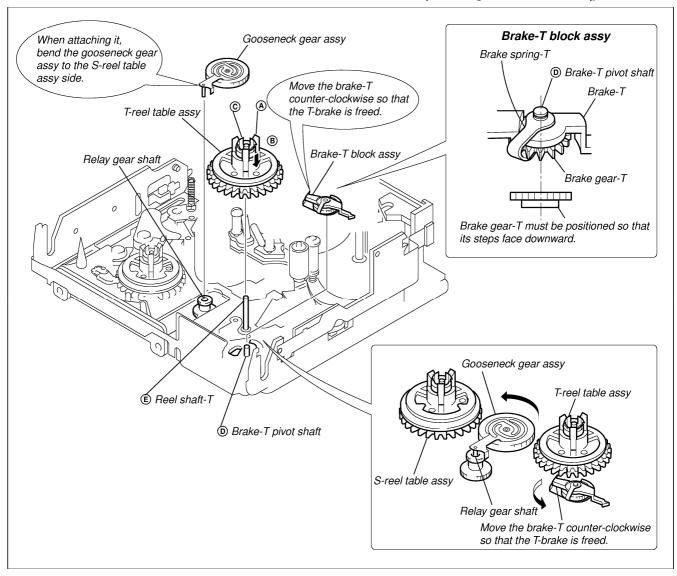


Fig. 3-4

### 3-5. TG1 Assy, Tension Coil Spring (Tension Regulator)

#### 1. Removal procedure

- 1) Remove the screw  $(M1.4 \times 2.5)$  (1).
- 2) Remove the tension coil spring.
- 3) Remove the TG1 assy tension regulator band.
- 4) Remove the (FWD) adjustment plate from the S-reel table. Place it between the T-reel table assy and pinch arm assy.
- 5) While pressing down the reel claw retainer (A) of the S-reel table assy in the direction of (B), remove the reel claw (C).

**Note 1:** Be careful not to deform the tension regulator band.

**Note 2:** Be careful that grease does not attach to the tension regulator band.

- Coat the root and its surroundings on TG1 pivot shaft (A) with grease (1/4 drop). (Strictly observe the coating position and specified amount of grease.)
- 2) Attach the S-reel table assy to the reel shaft-S.
- 3) Attach the TG1 assy to the TG1 pivot shaft (a). Note that the TG1 drive shaft has entered the groove of the LS block assy at this moment.
- 4) Wrap the tension regulator band around the S-reel table assy. Fix it with the screw (M1.4 × 2.5) ① while ensuring that direction of the (FWD) adjustment plate is correct as shown.
- Hook the tension coil spring ② on the TG1 assy and on the LS chassis block assy.
- 6) Clean the tip of the TG1 pivot shaft with a super-fine applicator (Ref. J-3) moistened with cleaning fluid.
- Perform the (FWD) position adjustment referring to section 3 6.
- 8) Perform the FWD back-tension adjustment referring to section 3-7
- 9) Perform the reel torque check referring to section 3-8.

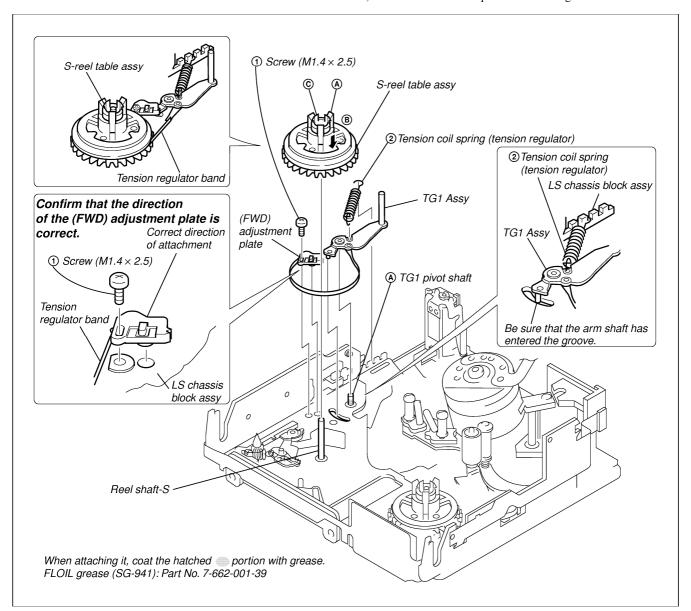


Fig. 3-5

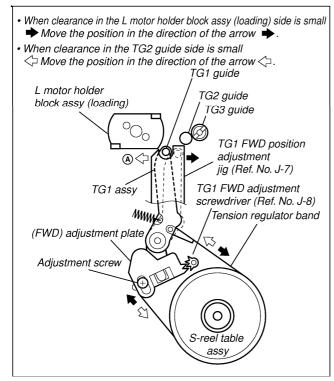
### 3-6. TG1 FWD Position Adjustment

When the TG1 assy or S-reel table is replaced, or when a part constituting these parts is replaced, perform the following adjustment.

- TG1 FWD Position Adjustment
- FWD Back-tension Adjustment (Refer to section 3-7.)
- Reel table (RVS) torque check (Refer to section 3-8.)

#### 1. Adjustment procedure

- 1) Establish the RP mode.
- 2) Install the TG1 adjustment jig (Ref. No. J-7) as specified by the S/T position setting.
  - Note: Be careful not to damage the flexible wiring board.
- Attach the torque screwdriver (Ref. No. J-11) and the TG1 FWD adjustment screwdriver (Ref. No. J-8) to the adjustment screw block
- 4) While rotating the adjustment screwdriver a little, press it down lightly so that it is aligned with the gear of the (FWD) adjustment plate.
- 5) Loosen the adjustment screw that is tentatively tightened by the torque screwdriver. Perform adjustment so that TG1 comes to the center of the gauge's groove when viewed from directly above the TG1 adjustment jig (Ref. No. J-7). Then tighten the adjustment screw.
  - Tightening torque: 0.0588 N•m (0.6 kg•cm).
- 6) Check again that the TG1 position remains in the correct position, then remove the jig.





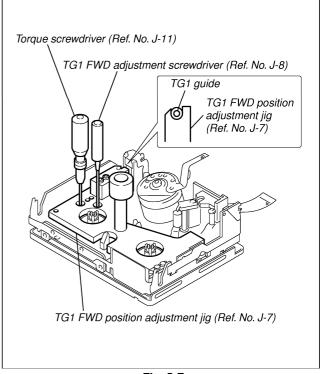


Fig. 3-7

#### 3-7. FWD Back-tension Adjustment

#### 1. Adjustment procedure

- 1) Install the Mini DV torque cassette (Ref. No. J-6).
- 2) Set the RP mode. Confirm that the torque reading of the supply side is in the range of 0.45 to 0.55 mN•m (4.5 to 5.6 g•cm) including fluctuation. If the torque reading is outside the specified range, perform the following adjustment.
- If the torque reading value is higher than the specification: (Reduce the spring tension as follows.)
   Shift the hook position of the tension coil spring in the direction of (a).
- If the torque reading value is lower than the specification: (Increase the spring tension as follows.)

  Shift the hook position of the tension coil spring in the direction of (B).

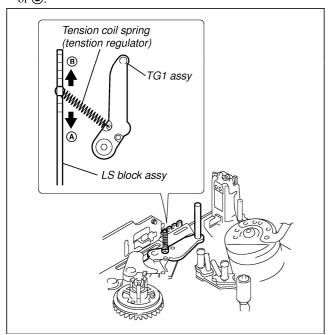


Fig. 3-8

## 3-8. Reel Torque Check

## 1. Check procedure [FWD torque]

- 1) Install the Mini DV torque cassette (Ref. No. J-6).
- 2) Set the FWD mode. Confirm that the center of the T-reel table torque reading value is 0.54 to 1.32 (mN•m) (5.5 to 13.5 g•cm) and the fluctuation value is 0.39 to 0.40 (mN•m) (3.9 to 4.0 g•cm).

#### [RVS torque]

- 1) Install the Mini DV torque cassette (Ref. No. J-6).
- 2) Set the RVS mode (by using the EDIT SEARCH (–) button of the machine). Confirm that the center of the S-reel table torque reading value is 1.37 to 2.11 (mN•m) (14 to 21.5 g•cm) and the fluctuation value is 0.39 to 0.40 (mN•m) (3.9 to 4.0 g•cm).

If either of the above specifications is not satisfied, check whether the tension regulator band has any abnormality. If it has no abnormality, replace the corresponding reel table.

#### 3-9. TG3 Guide Zenith Adjustment

- Remove the drum referring to section 3-1. Install the dummy drum (Ref. No. J-9).
- Install the TG36 gauge (Ref. No. J-10) on top of the dummy drum. Rotate the slant adjustment zenith screw until the TG3 guide and TG36 gauge (Ref. No. J-10) become parallel.
- 3) Remove all the jigs. Attach the original drum back in its original position referring to section 3-1.
- 4) Clean the TG3 and TG4 guides referring to section 2-2.
- 5) Perform the tape path adjustment. (Refer to section 4, "Tape Path Adjustment".)

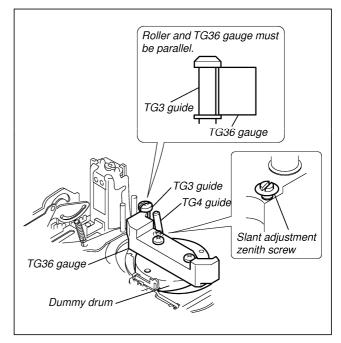


Fig. 3-9

### 3-10.TG6 Guide Zenith Adjustment

#### Adjustment procedure

- Remove the drum referring to section 3-1. Install the dummy drum (Ref. No. J-9).
- 2) Install the TG36 gauge (Ref. No. J-10) on top of the dummy drum. Adjust the slant of the TG6 guide.
- 3) Rotate the slant adjustment zenith screw until the TG6 guide and TG36 gauge (Ref. No. J-10) become parallel.
- 4) Remove all the jigs. Attach the original drum back in its original position referring to section 3-1.
- 5) Clean the TG5 and TG6 guides referring to section 2-2.
- Perform tape path adjustment. (Refer to section 4, "Tape Path Adjustment".)

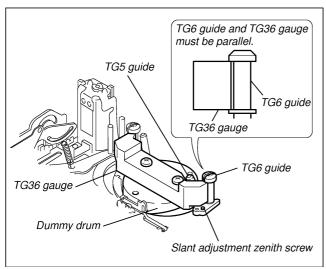


Fig. 3-10

### 3-11.LS Cam Plate Position Adjustment

#### 1. Adjustment procedure

- 1) Loosen the LS cam fixing screw  $(M1.4 \times 4)$  ① by 180 degrees.
- 2) Establish the STOP mode.
- While pressing down the center of the LS chassis block assy with force of 100 to 200 gf (0.98 to 1.96 N), move the LS cam plate toward the S-reel side and tighten the LS cam plate fixing screw (M1.4 × 4) ① with force of 500 to 1000 gf (4.9 to 9.8 N).

Tightening torque: 0.059 to 0.01 N•m (0.6 kg•cm).

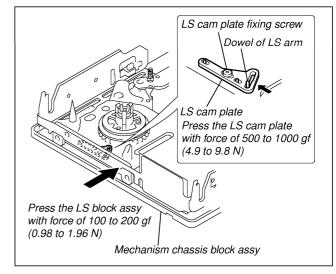


Fig. 3-11

### 3-12.LS Chassis Block Assy, LS Guide Retainer

#### 1. Removal procedure

- 1) Remove the FP-100 flexible wiring board from the FPC connector on the FP-102 flexible wiring board.
- 2) Remove the screw (M1.4  $\times$  2.5) ②. Remove the FPC holder from DC motor (capstan).
- 3) Remove the two screws  $(M1.4 \times 2)$  ①.
- 4) Remove the LS retainer in the direction of the arrow **(A)** on the top.
- 5) Remove the E-type stop ring 1.5 ③.
- Remove the LS chassis block assy in the direction of the arrow
   (B).

- 1) Confirm that the brake-T block assy has been moved in the counter-clockwise direction ©. While pressing the TG7 block in the direction of the arrow ①, insert the LS guide shafts T1 and T2 of the LS chassis block assy into the slots of the mechanism chassis with slanted angle.
- While inserting the LS arm dowel into the LS cam plate groove, insert the LS guide shafts S1 and S2 into the slots of the LS chassis block assy as shown.
- 3) Insert the LS guide retainer from the top, align it with the LS guide shafts S1 and S2 and fix it with the screw (M1.4×2) ①. Tightening torque: 0.059 to 0.01 N•m (0.6 kg•cm).
- Confirm that the LS guide retainer has play, is not lifted up, is not installed in opposite direction and has not been deformed.
- 5) Attach the E-type stop ring 1.5 ③ into the LS guide shaft T1.
- 6) Insert the FPC holder into DC motor (capstan) in the direction of the arrow **(E)** and fix it with the screw (M1.4 × 2.5) **(2)**.
- Connect the flexible wiring board coming from the FP-100 flexible wiring board into the FPC connector.

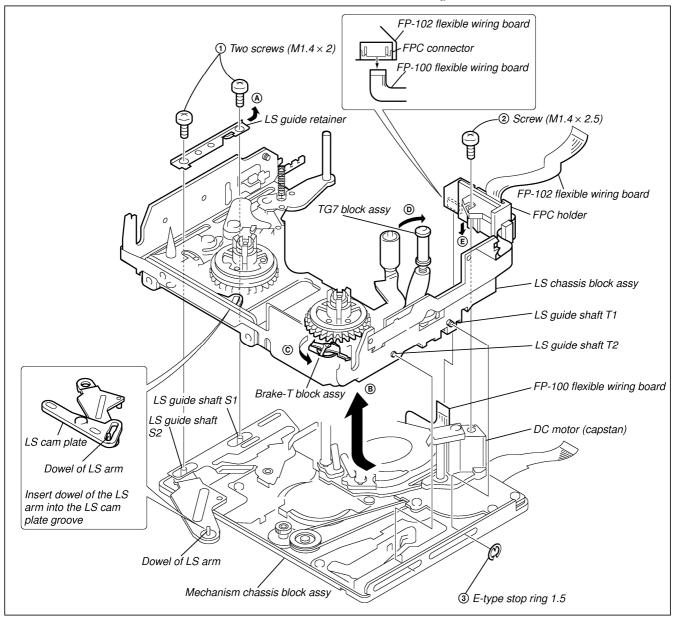


Fig. 3-12

## 3-13.LS Cam Plate, Tension Coil Spring (Brake-S), Brake-S, Torsion Coil Spring (Brake Arm), Cassette Position Set-S, Brake-S Driving Arm Assy

#### 1. Removal procedure

- 1) Remove the screw  $(M1.4 \times 1.4)$  ①.
- 2) Remove the LS cam plate.
- 3) Remove the tension coil spring (brake-S).
- 4) Remove the brake-S.
- 5) Remove the screw  $(M1.4 \times 2)$  ②.
- 6) Remove the torsion coil spring (brake arm).
- 7) Remove the cassette position set-S from groove of the LS block assy in the direction of the arrow (A).
- 8) Remove the brake-S drive arm assy from groove of the LS block assy in the direction of the arrow **(B)**.

- 1) Insert the brake-S drive arm assy under groove of the LS chassis block assy. Attach the brake-S drive arm assy to the brake-S arm shaft and to the brake-S pivot shaft.
- Insert the cassette position set-S under the groove of the LS chassis block assy. Attach the cassette position set-S to the brake-S arm shaft.
- 3) Attach the torsion coil spring (brake arm).
- 4) Attach the screw  $(M1.4 \times 2)$  ② to the brake-S arm shaft.
- Attach the brake-S to the brake-S arm bearing and to the brake-S pivot shaft.
- 6) Hook the tension coil spring (brake-S) to the spring stay of the cassette position set-S and the spring stay of the brake-S.
- 7) Align the slot of the LS cam plate with the dowel. Move then in the direction toward the arrow © and attach the screw (M1.4 × 1.4) ①.
- Perform the LS cam plate position adjustment referring to section 3-11.

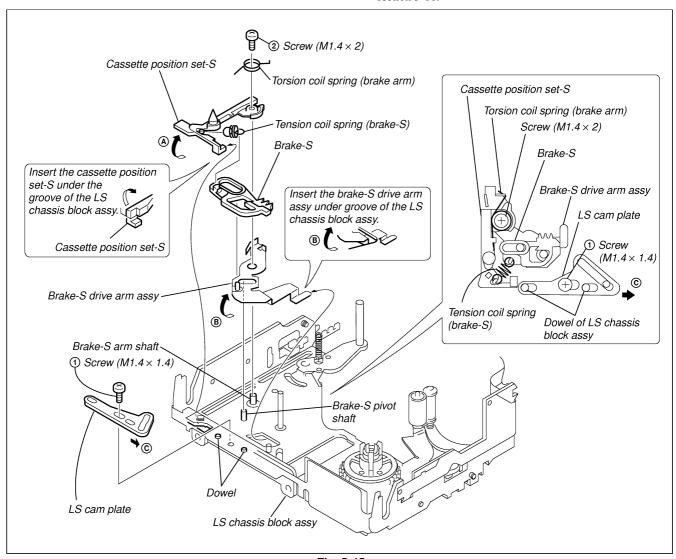


Fig. 3-13

## 3-14.TG7 Block Assy, Torsion Coil Spring (TG7 Return, Pinch Return), Pinch Arm Assy

#### 1. Removal procedure

- 1) Remove the TG7 block assy in the direction of the arrow **(A)**.
- 2) Remove the torsion coil spring (TG7 return) ①.
- 3) Remove the pinch arm assy in the direction of the arrow **B**.
- 4) Remove the torsion coil spring (pinch roller return) ②.

- 1) Install the torsion coil spring (pinch roller return) ①. (Insert the 90-degree-bent portion of the torsion spring into the square hole of the LS chassis block assy.)
- 2) Attach the pinch arm assy to the pinch arm bearing.
- 3) Attach the torsion coil spring (TG7 return) ①.
- 4) While aligning the TG7 block assy with the groove of the LS chassis block assy, install the TG7 block assy into the TG7 block assy bearing.

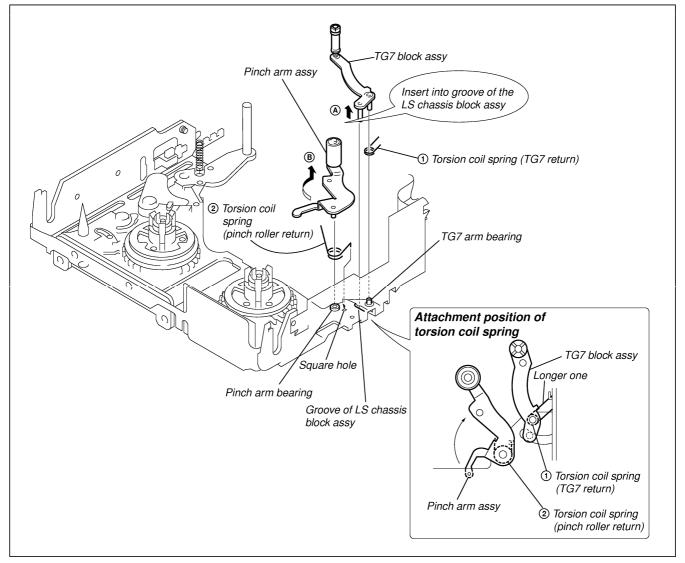


Fig. 3-14

## 3-15. Layout Diagram of FP-102 Flexible Wiring Board

#### 1. Removal procedure

- 1) Remove the sensor holder-T from groove of the LS chassis block assy in the direction of the arrow **(A)**.
- Remove the cassette holder-S by pushing out the hook under the LS chassis block assy towards the direction of the arrow (B)

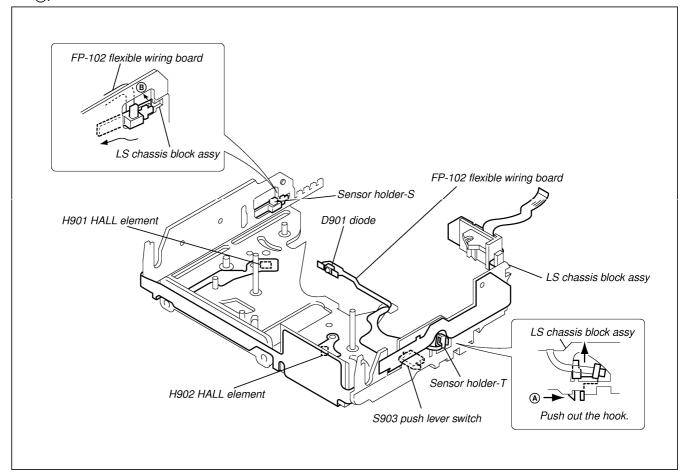


Fig. 3-15

### 3-16.TG1 Cam Slider, LS Arm, LS Roller, Mode Gear Assy, LS Guide Roller

#### 1. Removal procedure

- 1) Remove the TG1 cam slider.
- Remove the LS arm. (At this moment, be careful that the LS roller can come out of cam gear A groove.)
- 3) Remove the LS roller from the LS arm.
- 4) Remove the LS guide roller.

- 1) Coat inside the LS guide roller with grease (1/4 drop of grease) and insert it into the LS guide shafts S1 and S2.
- 2) Coat outside the LS guide roller with grease (1/2 drop of grease) at the two points as shown.
- While aligning dowel of the TG1 drive arm with groove of the mode gear assy, insert the TG1 drive arm into the LS guide shaft S1.
- 4) Coat the portion **(A)** of the LS arm with grease (1/4 drop of grease) and insert the LS guide roller.
- 5) Coat both sides of the groove of the cam gear A with grease (1/2 drop of grease). Insert the LS guide roller into groove of the cam gear A and insert the LS arm into the LS guide shaft S2.
- 6) Insert the TG1 cam slider into the three positions of the LS guide shaft S1, S2 and slider guide shaft. Insert dowel of the TG1 cam slider into groove of the cam gear A.
- Be careful that greasing points are correct, amount of grease is correct and the LS arm and the TG1 drive arm are not floating.

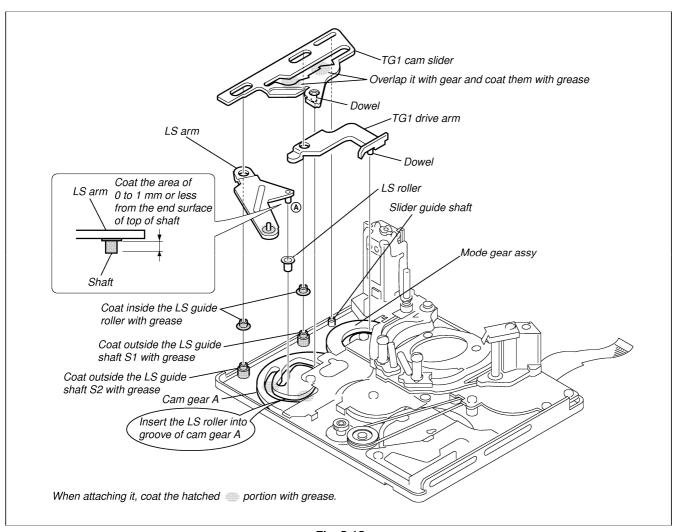


Fig. 3-16

### 3-17. Guide Rail

#### 1. Removal procedure

- 1) Remove the screw  $(M1.4 \times 2)$  ①.
- When removing the guide rail, be careful that claws of the drum base block assy are fully released. Remove the S-side rail, Tside rail and rail of DC motor side in this order.

#### 2. Attachment procedure

 Engage the claws of the guide rails with the claws of the drum base block assy starting engaging the claw from the T-side rail and S-side rail.

**Note:** There must no deformation of guide rail, claws must not be broken, claws must not override, claws must not become white, not be stained or have no play.

2) Fix the guide rail with the screw  $(M1.4 \times 2)$  ①. Tightening torque:  $0.059 \pm 0.01$  N•m  $(0.6 \text{ kg} \cdot \text{cm})$ 

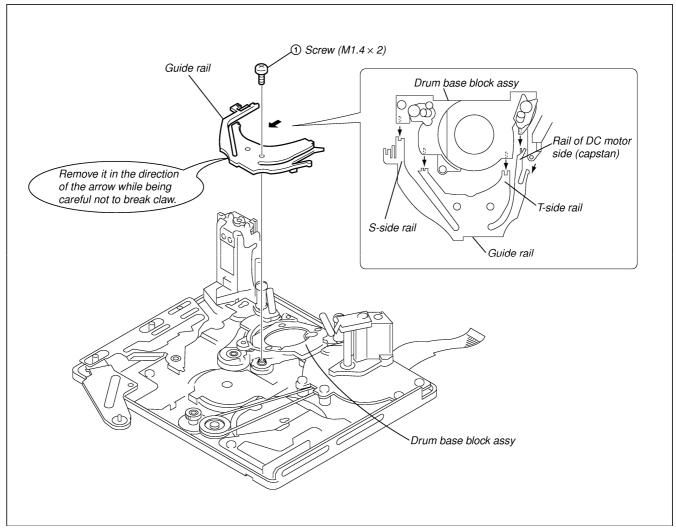


Fig. 3-17

## 3-18. Gear Cover B, GL Driving Gear

#### 1. Removal procedure

- 1) Remove the screw  $(M1.4 \times 2)$  ①.
- 2) Remove the gear cover B in the direction of the arrow **(A)**.
- 3) Remove the GL drive gear.

#### 2. Attachment procedure

- 1) Coat the cam gear A and the GL drive gear with grease (1/2 drop). (Refer to Fig. 2.)
- 2) Refer to Fig. 1. While adjusting phase of the GL drive gear as shown, insert the GL drive gear into the GL drive shaft. (Insert it while moving the GL drive gear in the clockwise direction.)
- 3) Insert the two claws of the gear cover B into the square holes of mechanism chassis.
- Fix the GL drive shaft with the screw (M1.4 × 2) ①. Be sure that the gear cover B must not have any play.
   Tightening torque: 0.059 ± 0.01 N•m (0.6 kg•cm)

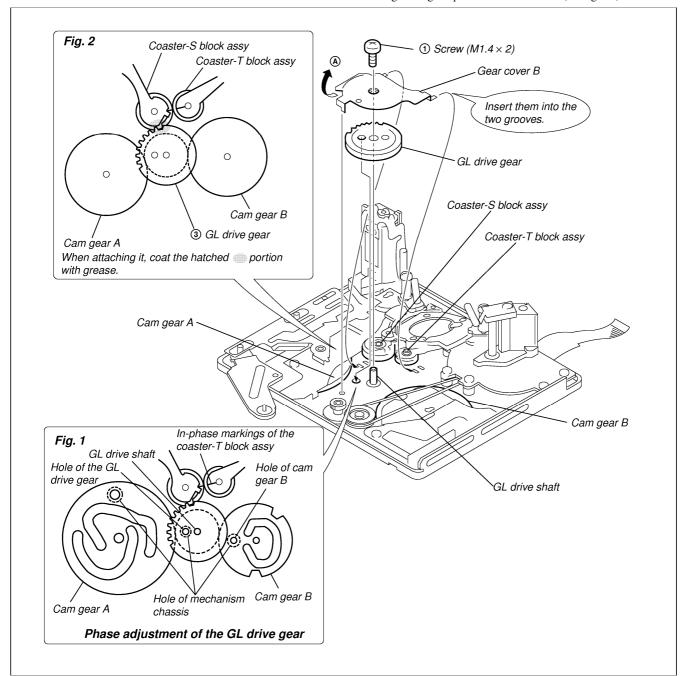


Fig. 3-18

## 3-19. Drum Base Block Assy, Coaster-S Block Assy, Coaster-T Block Assy

#### 1. Removal procedure

- 1) Remove three screws  $(M1.4 \times 2.5)$ .
- Move the coaster-S block assy and coaster-T block assy out from the drum base groove in the direction of the arrow .
- 3) Remove the drum base block assy.
- 4) Remove the coaster-S block assy from the GL gear shaft-S.
- 5) Remove the coaster-T block assy from the GL gear shaft-T.

#### 2. Attachment procedure

- 1) Insert a coaster-S block assy and coaster-T block assy into the drum base groove.
- Place a drum base block assy on top of the mechanism chassis assy. Insert a coaster-T block assy into the GL gear shaft-T.
- 3) Insert a coaster-S block assy in the oblique direction. While adjusting phase so that the spring of coaster-S block assy agrees with the GL gear lever marking of the coaster-T block assy, insert a coaster-S block assy into the GL gear shaft-S.

**Note:** • There must be no phase difference.

- Do not remove coaster-S block assy and coaster-T block assy from the drum base block assy.
- 4) Determine the exact position of the drum base block assy that has been tentatively placed, on the mechanism chassis assy. Tighten the screws at (a), (b) and (c) in this order. Tightening torque: 0.059 ± 0.01 N•m (0.6 kg•cm)

**Note:** Be careful that the position setting boss of drum base block assy does not override on the mechanism chassis.

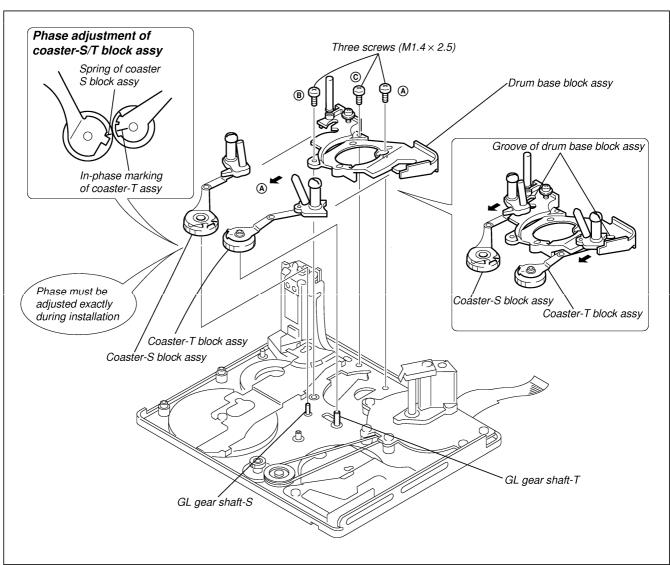


Fig. 3-19

## 3-20. DC Motor (Capstan), Conversion Gear, Relay Gear

### 1. Removal procedure

- 1) Remove the three screws  $(M1.4 \times 2)$  ①.
- Remove DC motor (capstan). Remove belt from the pulley of conversion gear.
- 3) Remove conversion gear.
- 4) Remove relay gear.

#### 2. Attachment procedure

- 1) Coat relay gear shaft and conversion gear shaft with grease (1/8 drop). (Amount of grease must be strictly controlled.)
- 2) With the larger gear of the relay gear positioned down, attach the relay gear to the relay gear shaft.
- With the pulley side of the conversion gear positioned up, engage the conversion gear teeth with the relay gear teeth, and install them.
- 4) Before installing the DC motor (capstan (including belt)), check that belt is not twisted. Hook a belt on the pulley block of conversion gear. Align three shafts with corresponding holes. At this moment, confirm that belt does not override on the shaft.
- 5) Install DC motor (capstan) with three screws  $(M1.4 \times 2)$  ① in the order of ⓐ, ⓐ and ⓒ.
  - (A), (B), (C) tightening torque
  - (A) tightening torque:  $0.059 \pm 0.01 \text{ N} \cdot \text{m}$  (0.6 kg·cm)
  - **B** and **C** tightening torque:  $0.038 \pm 0.01 \text{ N} \cdot \text{m}$  ( $0.4 \text{ kg} \cdot \text{cm}$ )

**Note:** Be careful that gears and belts are not damaged or dust is not attached. Be careful also not to splash grease.

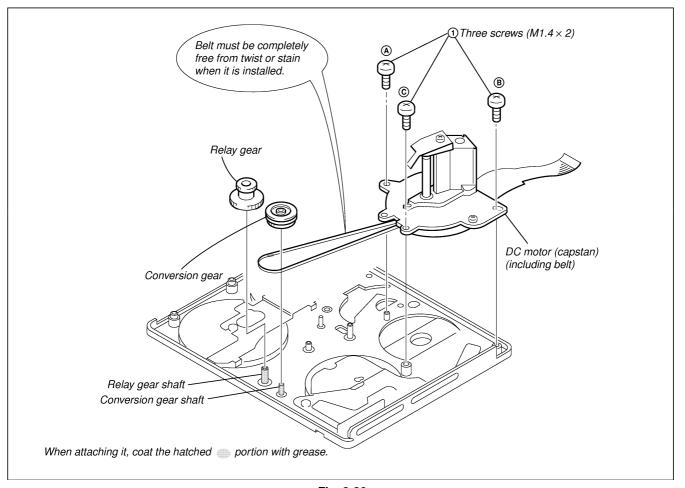


Fig. 3-20

## 3-21. Gear Cover C, Pinch Driving Arm Assy, Cam Gear B

#### 1. Removal procedure

- 1) Remove the screw  $(M1.4 \times 2)$  ①.
- 2) Move the key slot of the gear cover C in the direction of the arrow (a) and remove the gear cover C.
- 3) Remove the pinch drive arm assy.
- 4) Remove the cam gear B.

#### 2. Attachment procedure

- 1) Identify the front side and the rear side of a cam gear B. Align the cam gear B shaft, the gear phasing hole and the LS chassis hole. Then attach the cam bear B. coat groove of a cam gear with grease (1/2 drop).
- Align the pinch drive arm assy with the pinch drive pivot shaft.
   While aligning dowel with the cam groove of the cam gear B, insert the pinch drive arm assy.
- 3) Insert the "one-step bent portion" of gear cover C into notch of the chassis, insert the cam gear B shaft into the key hole of the gear cover. C.
- 4) Insert the gear cover C into the pinch drive pivot shaft and fix it with the screw  $(M1.4 \times 2)$  ①. After tightening the screw  $(M1.4 \times 2)$  ①, move the gear cover C in order to confirm that there is a little play.

Tightening torque:  $0.059 \pm 0.01 \text{ N} \cdot \text{m} (0.6 \text{ kg} \cdot \text{cm})$ 

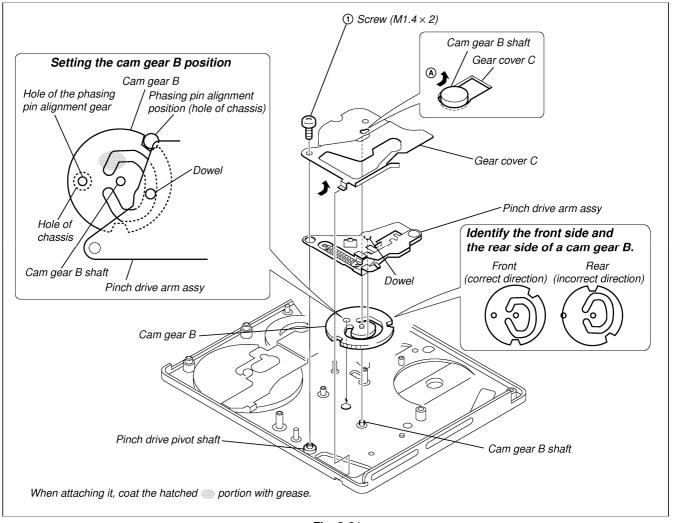


Fig. 3-21

## 3-22. Gear Cover A, FP-100 Flexible Wiring Board

#### 1. Removal procedure

- 1) Remove the screw  $(M1.4 \times 2)$  ①.
- 2) Remove the gear cover A in the direction of the arrow **(A)**.
- 3) Remove the screw  $(M1.4 \times 2.5)$  ②.
- 4) Remove soldering from the motor terminal and FP-228 flexible wiring board (DEW sensor) that are used to connect the FP-100 flexible wiring board with the motor holder block assy.
- 5) Remove the motor holder block assy.

#### 2. Attachment procedure

 Align the motor holder block assy position with the chassis square hole and round hole. The press the motor holder block assy with finger.

**Note:** Coat the worm shaft with grease (1/2 size of a rice gain).

2) Fix the motor holder block assy with the screw  $(M1.4 \times 2.5)$  ②.

Tightening torque:  $0.059 \pm 0.01 \text{ N} \cdot \text{m} (0.6 \text{ kg} \cdot \text{cm})$ 

- 3) Install the gear cover A as follows: Hook the shaft with the key slot and align the U-groove with the cam gear A shaft. Confirm at this time that there is a play.
- 4) Attach the gear cover A to the cam gear A shaft and fix them with the screw  $(M1.4 \times 2)$  ①.

Tightening torque:  $0.059 \pm 0.01 \text{ N} \cdot \text{m} (0.6 \text{ kg} \cdot \text{cm})$ 

5) Connect the FP-100 flexible wiring board with the motor holder block assy (motor terminal and FP-228 flexible wiring board (DEW sensor)) by soldering.

**Note:** Do not touch the DEW sensor.

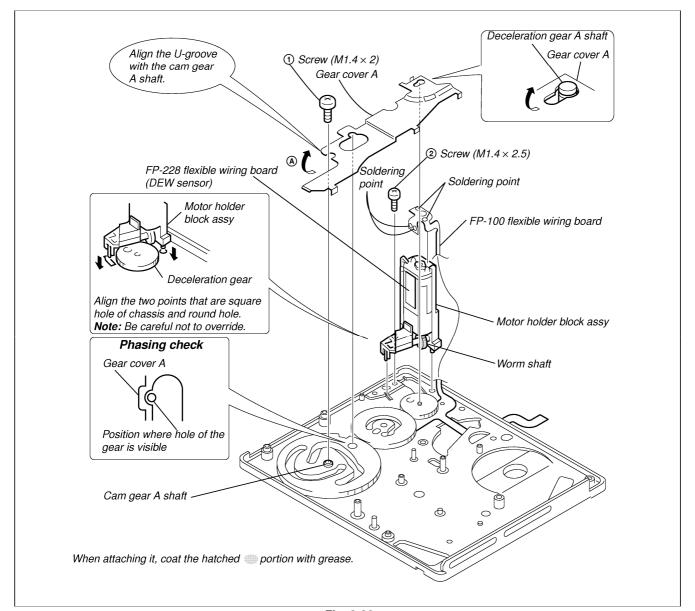


Fig. 3-22

## 3-23. Deceleration Gear, Mode Gear Assy, FP-100 Flexible Wiring Board, Cam Gear A

#### 1. Removal procedure

- 1) Remove the deceleration gear.
- 2) Remove the screw  $(M1.4 \times 2)$  ①.
- 3) Remove the cam gear A.
- 4) Remove the mode gear assy.
- 5) Remove the FP-100 flexible wiring board.

**Note 1:** Do not touch the foil pattern area of the FP-100 flexible wiring board. Any foreign materials must not be adhered.

Note 2: Do not remove the mode gear assy unnecessarily.

## 2. Attachment procedure

- Install the FP-100 flexible wiring board to the mechanism chassis. Confirm that flexible wring board is not stained, broken, bent or damaged.
- 2) Coat the entire contact points of the mode pattern area of the FP-100 flexible wiring board with the contact-point grease (equivalent to 1.5 drops). (Any foreign materials must not be mixed in the contact-point grease.)
- 3) Attach the mode gear assy to the mode gear shaft.

- 4) Install the deceleration gear as follows: Position the deceleration gear with its small gear down, and engage the small gear tooth with the mode gear tooth. Rotate the gear tooth until the phasing marking of the mode gear assy arrives at the phasing position of the cam gear A.
- Identify the front and rear sides of the cam gear A. Confirm that the marking of the cam gear A and that of the mode gear assy agree.
- 6) Attach the screw (M1.4 × 2) ① of the mode gear assy. Tightening torque: 0.059 ± 0.01 N•m (0.6 kg•cm)
- 7) Connect the FP-100 flexible wiring board to the motor holder block assy by soldering in accordance with section "3-22 [2. Attachment procedure] step 7.
- **Note 1:** If the FP-100 flexible wiring board is removed, replace it with a new FP-100 board, and do not use the removed FP-100 flexible wiring board.
- **Note 2:** Cautions when attaching the FP-100 flexible wiring board:
  - ① It must not override on the mode gear shaft.
  - ② It must be aligned with the position setting hole.
  - 3 It must no float, must not have stain or must not be broken.
  - 4 Never touch the foil pattern area with hand.

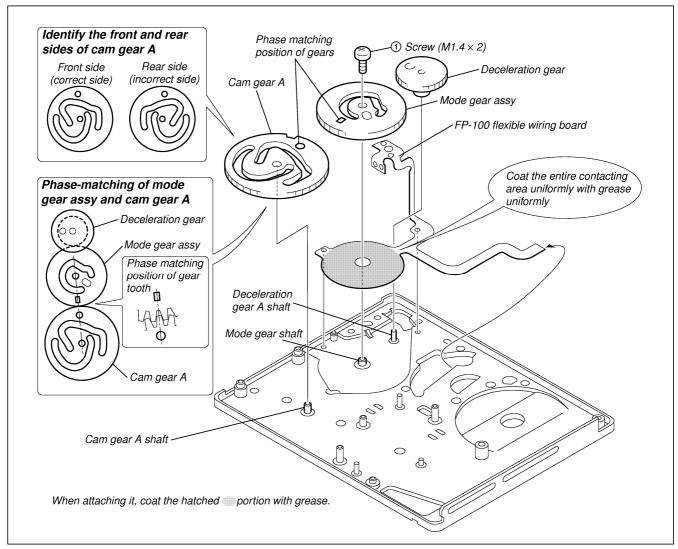


Fig. 3-23

## 4. Tape Path Adjustment

## 4-1. Adjustment Preparation

- Clean the tape running surface (tape guides, drum, capstan, pinch roller) referring to Service Manual.
- Connect adjustment remote commander (Ref. No. J-13) to the LANC terminal of the machine. Set the HOLD switch to ON.
- 3) Connect an oscilloscope to the VC-240 board CN009 via the CPC-8 jig (J-082-388-A). (in the case of DCR-TRV20).

Scope channel 1: VC-240 board CN009 pin ② (Note) External trigger: VC-240 board CN009 pin ③

**Note:** Connect CN009 pin @ and pin @ (GND) with 75  $\Omega$  resistor (1-247-804-11).

- 4) Play the tracking alignment tape (XH2-1)(Ref. No. J-5) back.
- 5) Select page: 3, address: 33 and data: 08. (Note)
- 6) Select page: 3, address: 26 and data: 31. (Note)
- 7) Confirm that RF waveform on scope is flat in both entrance side and exit side. (Refer to Fig. 4-2 **(A)**). If RF waveform is not flat in entrance side and exit side, perform the adjustment of section 4-2. and later. (Refer to Fig. 4-2 **(B)** and **(C)**).
- 8) When the required conditions of step 7) are satisfied and adjustment/check are complete, perform [Required work upon completion of adjustment] as described below.

#### [Required work upon completion of adjustment]

- Connect adjustment remote commander (Ref. No. J-13) to the LANC terminal of the machine. Set the HOLD switch to ON.
- 2) Select page: 3, address: 26 and data: 00. (Note)
- 3) Select page: 3, address: 33 and data: 00. (Note)

**Note:** Page and address numbers differ depending on each model. Please refer to Service Manual of respective models. Those of DCR-TRV20 are described above.

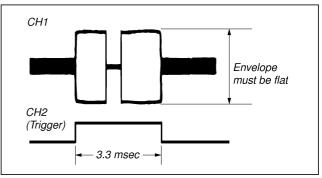


Fig. 4-1

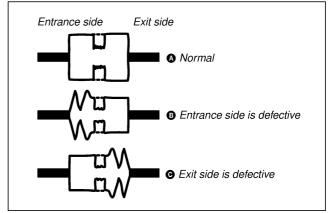


Fig. 4-2

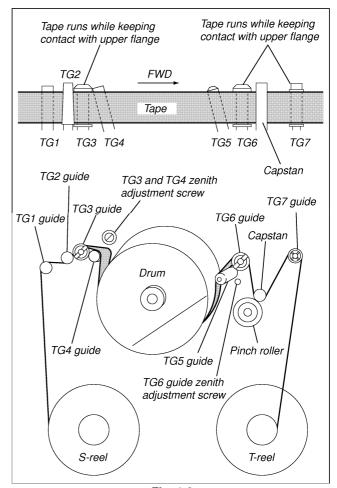


Fig. 4-3

## 4-2. Tracking Adjustment

- 1) Play the tracking alignment tape (XH2-1) (Ref. No. J-5) back.
- Adjust TG3 guide until the envelope of entrance side waveform becomes flat.
- Adjust TG6 guide until the envelope of exit side waveform becomes flat.

Note: Do not touch or adjust TG3 and TG4 guide zenith adjustment screw.

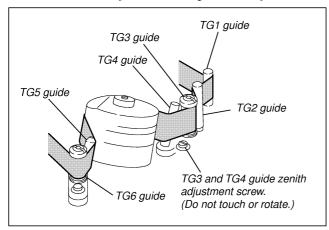


Fig. 4-4

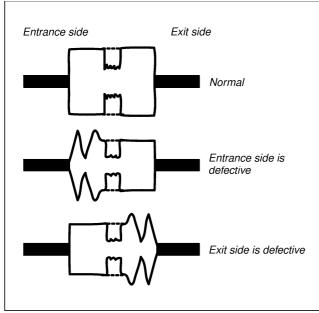


Fig. 4-5

## 4-3. TG3 Guide Adjustment

- 1) Play the tracking alignment tape (XH2-1) (Ref. No. J-5) back.
- 2) Run the tape in FWD mode. Confirm that tape runs while keeping contact with upper flange of TG3. If any clearance is found between top flange and tape, rotate the adjustment nut in clockwise direction until tape runs while keeping contact with upper flange of TG3.

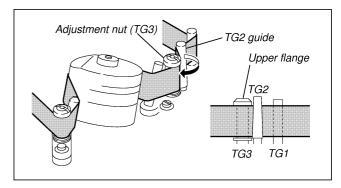


Fig. 4-6

When tape runs while keeping contact with upper flange of TG3, confirm that the tracking waveform does not change. If the tracking waveform has poor amplitude at the entrance side as shown, perform tracking adjustment of entrance side.

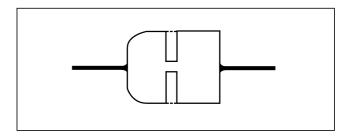


Fig. 4-7

After entrance side is adjusted, establish the RVS mode. Make an attempt to rotate the TG3 adjustment nut by 180 degrees in the counter-clockwise direction in order to confirm that tape rises upward. Upon confirmation, return the TG3 adjustment nut to the original position.

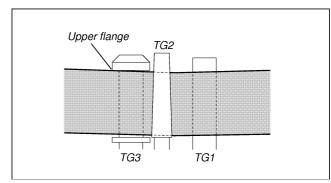


Fig. 4-8

## 4-4. TG7 Guide Adjustment

- Establish the FWD mode. Confirm that tape slack does not occur in between capstan and TG7 guide. (Specification value: 0.5 mm or less of tape slack) If any tape slack occurs, rotate the tG7 guide to remove the tape slack.
- 2) Establish the REV mode. Confirm that RF waveform at exit side is normal. (Refer to Fig. 4-10.)
- If the RF waveform at exit side has abnormality, rotate the TG7 nut by 90 degrees in counter-clockwise direction. Then perform steps 1) and 2) again.

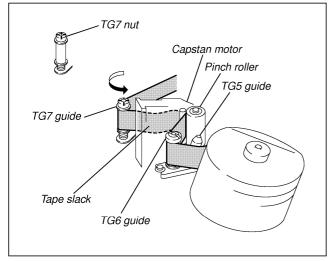


Fig. 4-9

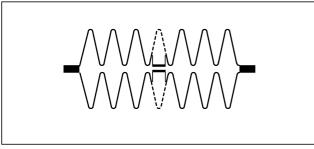


Fig. 4-10

# 4-5. Check upon Completion of Adjustment

## 1. Tracking Check

- 1) Play the tracking alignment tape (XH2-1) (Ref. No. J-5) back.
- 2) Confirm that RF waveform has amplitude of about 0.65A (65%) in the FWD mode taking the waveform amplitude during CUE/REV mode as A (= 100%). (Refer to Fig. 4-11.)

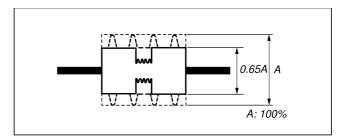


Fig. 4-11

3) Confirm that difference between the minimum amplitude (E.min) and the maximum amplitude (E.max) of RF waveform in the FWD mode is 30% or more taking the waveform amplitude during CUE (or REV) mode as A (= 100%).

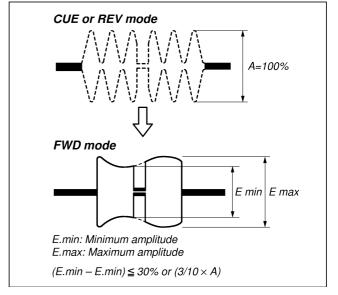


Fig. 4-12

4) Confirm that the RF waveform does not have excessive fluctuation.

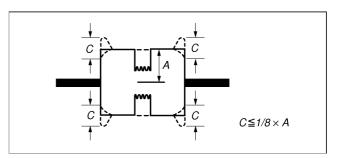


Fig. 4-13

#### 2. CUE/REV Check

- 1) Play the tracking alignment tape (XH2-1) (Ref. No. J-5) back and enter the REV mode. Confirm that pitches between peaks of RF waveform are equally spaced. (Refer to Fig. 4-14.) If pitches between peaks of RF waveform are not equal, perform sections "4-2 Tracking Adjustment" and "4-4. TG7 Guide Adjustment".
- 2) Enter the CUE mode. Confirm that pitches between peaks of RF waveform are equally spaced. (Refer to Fig. 4-14.) If pitches between peaks of RF waveform are not equal, perform sections "4-2 Tracking Adjustment".

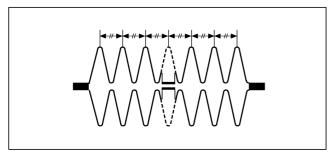


Fig. 4-14

## 3. Rise-up Check

- 1) Play the tracking alignment tape (XH2-1) (Ref. No. J-5) back.
- 2) Establish the FWD playback mode. Confirm that RF waveform rises up in two seconds or less. Confirm also at this time that tape slack does not occur at around pinch roller.
- Run a tape in CUE/REV mode and FF/REW mode. After that play the tape back and confirm that RF waveform rises up in two seconds or less.
- 4) Repeat steps 2) and 3) repeatedly.

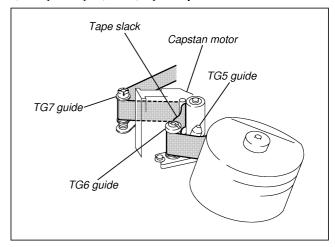


Fig. 4-15

#### 4. Tape Run Check

Run a tape in CUE/REV mode. Confirm to see that major tape curl does not occur at TG2 lower taper, TG3 upper flange, TG6 upper flange and TG7 upper flange during CUE/REV mode.

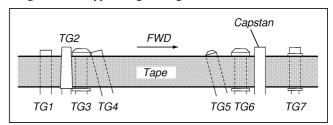
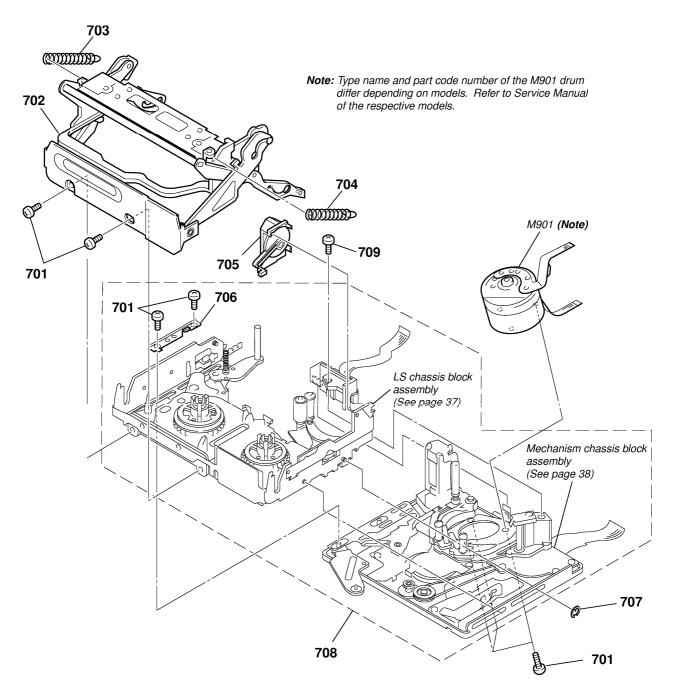


Fig. 4-16

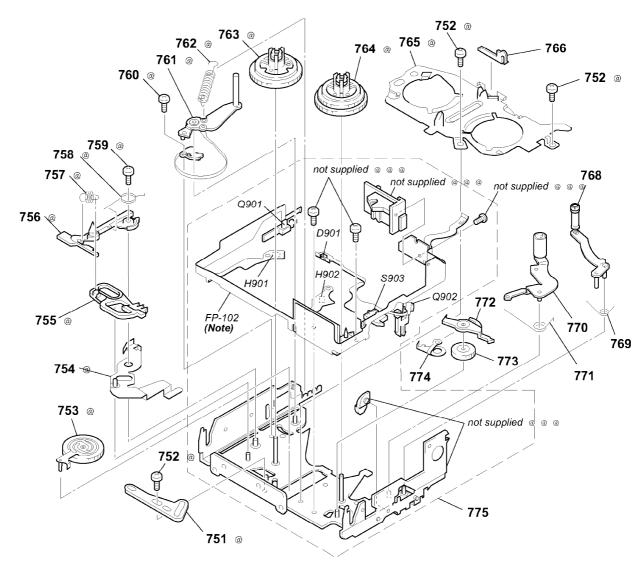
# 5. Exploded View

## 5-1. Cassette Compartment Block Assy, Drum Assy Block



Ref. No.	Part No.	<u>Description</u> <u>Ren</u>	narks	Ref. No.	Part No.	<u>Description</u>	<u>Remarks</u>
701	3-703-816-14	SCREW (M1.4)		706	3-059-101-01	RETAINER, LS GUIDE	
702	X-3950-369-2	CASSETTE COMPARTMENT ASSY		707	7-624-102-04	STOP RING 1.5, TYPE -E	
703	3-059-082-01	SPRING, TENSION		708	A-7028-133-A	MD(J100) SUB ASSY (Y)	
704	3-059-208-01	SPRING (CASSETTE COMPARTMENT T)		709	3-703-816-41	SCREW (M1.4X2.5), SPECIAL HEAD	
705	X-3950-370-2	DAMPER ASSY		M901	— Note —	DRUM	

## 5-2. LS Chassis Block Assy

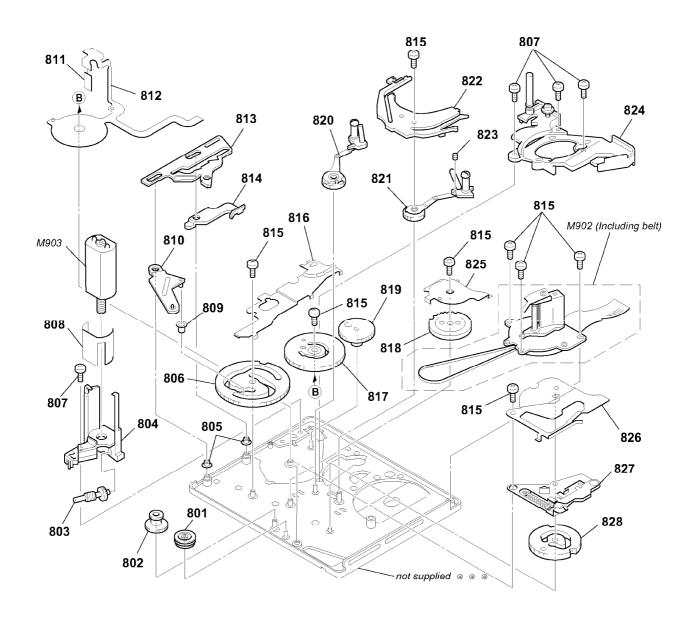


Note: FP-102 is included in the LS sub assy and is attached to chassis by hot-press.

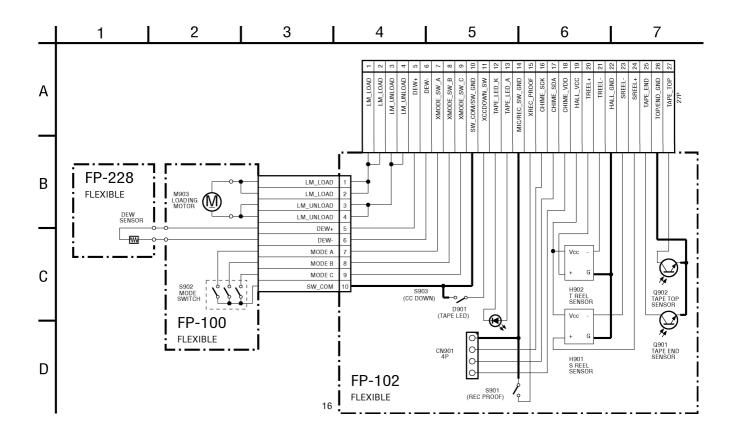
Because installation of FP-102 requires a very high accuracy, FP-102 is not supplied as an independent service parts.

Ref. No.	Part No.	<u>Description</u>	<u>Remarks</u>	Ref. No.	<u>Part No.</u>	<u>Description</u>	<u>Remarks</u>
751	3-059-173-01	PLATE, LS CAM		766	3-059-093-01	RETAINER, LED	
752	3-059-100-01	SCREW (M1.4X1.4), SPECIAL HEAD		768	A-7094-819-A	TG7 BLOCK ASSY	
753	X-3950-364-1	GEAR ASSY, GOOSENECK		769	3-059-165-01	SPRING (TG7 RETURN), TORSION	
754	X-3950-371-1	ARM ASSY, BRAKE (S) DRIVING		770	X-3950-359-1	ARM ASSY, PINCH	
755	3-059-166-01	BRAKE (S)		771	3-059-161-01	SPRING (PINCH RETURN), TORSION	
756	3-059-146-01	POSITIONING (S), CASSETTE		772	3-059-170-01	BRAKE (T)	
757	3-059-167-01	V //		773	3-059-171-01	\ /	
758	3-059-169-01	SPRING (BRAKE S ARM), TORSION		774	3-059-172-01	V //	
759	3-703-816-14	SCREW (M1.4)		775	A-7094-816-A	LS BLOCK ASSY	
760	3-059-090-01	SCREW (M1.4X2.5), SPECIAL HEAD		D901	8-719-078-71	DIODE LA57A,SO (TAPE LED)	
761	X-3950-358-2	TG1 ASSY		H901	8-719-067-74	ELEMENT, HOLE HW-105A-CDE-T (S I	REEL)
762		SPRING (TENSION REGULATOR)		H902		ELEMENT, HOLE HW-105A-CDE-T (T	,
763		TABLE ASSY, S REEL		Q901		TRANSISTOR PN 166, SO (TAPE END)	,
764		TABLE ASSY T REFL		0902	8-729-028-71		

# 5-3. Mechanism Chassis Block Assy



Ref. No.	Part No.	<u>Description</u>	<u>Remarks</u>	Ref. No.	Part No.	<u>Description</u>	<u>Remarks</u>
801	3-059-211-01	GEAR, CONVERSION		816	3-059-117-01	COVER (A), GEAR	
802	3-059-220-01	GEAR, RELAY		817	X-3950-367-1	GEAR ASSY, MODE	
803	3-059-187-01	SHAFT, WORM		818	3-059-139-01	GEAR, GL DRIVING	
804	3-059-186-03	HOLDER, MOTOR		819	3-059-188-01	GEAR, DECELERATION	
805	3-060-002-01	ROLLER, LS GUIDE		820	A-7094-818-A	COASTER (S) BLOCK ASSY	
806	3-059-189-01	GEAR (A), CAM		821	A-7094-817-A	COASTER (T) BLOCK ASSY	
807	3-703-816-41	SCREW (M1.4X2.5), SPECIAL HEAD		822	3-059-126-01	RAIL, GUIDE	
808	3-059-225-01	SHIELD, MOTOR		823	3-962-914-01	SCREW (M1.4X2)	
809	3-059-191-01	ROLLER, LS		824	A-7094-822-A	DRUM BASE BLOCK ASSY	
810	3-059-190-01	ARM, LS		825	3-059-118-01	COVER (B), GEAR	
811	1-677-049-11	PWB, FP-228 FLEXIBLE		826	3-059-083-01	COVER (C), GEAR	
812	1-677-084-11	PWB, FP-100 FLEXIBLE		827	X-3950-368-1	ARM ASSY, PINCH DRIVING	
813	3-059-149-01	SLIDER, TG1 CAM		828	3-059-192-01	GEAR (B), CAM	
814	3-059-148-01	ARM, TG1 DRIVING		M902	8-835-685-01	MOTOR, DC SCD18A/C-NP (INCLUDIN	IG BELT)



FP-102

#### Ref. No. Part No. **Remarks Description** FP-102 FLEXIBLE (Not supplied) (Ref.No.;6000Series) < DIODE > D901 8-719-078-71 DIODE LN57A.SO < HOLE ELEMENT > H901 8-719-067-74 DIODE HW-105A-CDE-T 8-719-067-74 DIODE HW-105A-CDE-T H902 < TRANSISTOR > Q901 8-729-028-71 TRANSISTOR PN166.SO Q902 8-729-028-71 TRANSISTOR PN166.SO < SWITCH > 1-771-326-41 SWITCH, PUSH (1KEY) (CC DOWN) S903

7. Electrical Parts List